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Number 11
April 1989
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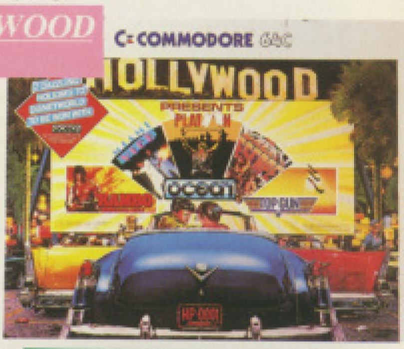
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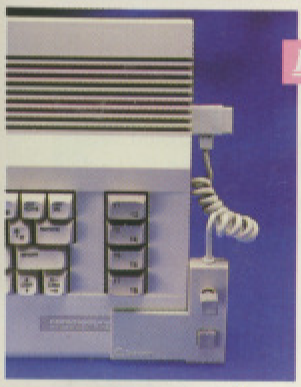
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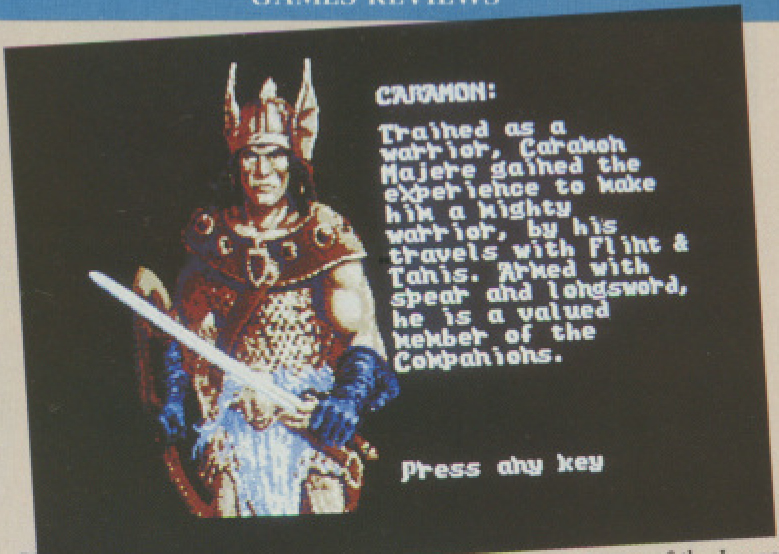


Dungeon Master Page 14

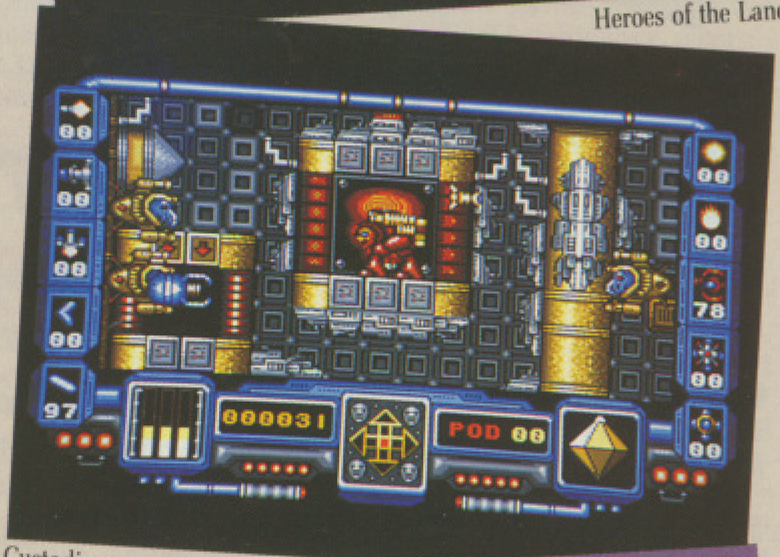


Assembler Tutor Page 53

GAMES REVIEWS



Heroes of the Lance



Custodian



Teenage Queen

MIXING Business WITH LEISURE WILL BE A REAL EDUCATION

Commodore computer show

Britain's brightest event for Commodore computer users is back! And there's more to see than ever before.

This show has three main themes covering some of the major uses to which Commodore machines are put. There are over 70 key companies who will be exhibiting their latest products, which means that just about everything that's new in the Commodore world will be on show!

Novotel Exhibition Complex, Hammersmith, London W6
Friday to Sunday
June 2 to 4
10am-6pm Friday & Saturday; 10am-4pm Sunday

Business

Many companies will be demonstrating their latest software and hardware, specially designed to release the full business potential of Commodore computers.

As well as products for the C64 and Amiga series, you'll be able to try out applications for the price-beating Commodore PC compatible micros.

And you'll also be able to attend seminars covering all aspects of using Commodore micros in your business.

Leisure

The C64 and Amiga computers are the most powerful 8 and 16 bit micros for producing fast-action arcade quality games. The range of new software on show will demonstrate how these machines' power is continually being stretched, producing faster and even more addictive games with superb graphics.

If you're a keen game player, you'll find there's so much on offer at the show you're guaranteed a real treat!

Education

Commodore micros are now used as educational tools all over the country. With the development of BBC Basic on the Amiga, and the advent of Desktop Video (combining TV pictures with text and graphics), the range of educational applications is endless.

At the show you'll see how the latest software packages are making real breakthroughs in the educational sector, and be able to try them out for yourself.

Special Events

As well as special events and presentations, you'll also be able to meet some of your favourite celebrities, and maybe get a chance to talk with them about how they use micros in their work.

So for a great day out, whether you want to see what the future holds for Commodore computers, to buy the latest software or to get advice on specific applications, the Commodore show is the place to go. And if you send in the coupon today, we'll knock £1 off the price of each ticket!

● ***For the first time we are offering a family ticket for just £11 allowing entry for two adults and two children – saving up to £7 off the usual entry price!***

How To Get There
By Underground: *Hammersmith (Piccadilly, Metropolitan & District).*
By Bus: *266, 714, 716, 290, 30, 72, 73, 74.*
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AMIGA SCENE

Commodore unveils 20meg hard disc

THE Commodore stand at the Which? Computer Show offered no real surprises but a lot of detail about previously announced yet unreleased products.

The most exciting of these was the A590 hard disc which plugs into the edge connector on the A500. The box is the same height as the A500, a shade shorter and about a quarter of the width. It contains a 20 meg hard drive and 2 meg of ram.

Fluctuations in the price of ram mean that Commodore is reticent to put a price on the unit but is aiming for around £600. This is significantly cheaper than a hard drive and ram for the A2000, and compares well with the price of a 2 meg ram board for an IBM PC.

Despite having a fairly slow hard disc – 80 millisecond access compared with the 28ms drives which are becoming popular with many users – the system is blisteringly fast. This is in part due to the Fast File System (FFS) supplied and in part to a Commodore custom chip.

If you have a 1.3 rom you will be able to autoboot from the A590, which comes preformatted.

Owners of machines with a 1.2 rom can either have the machine upgraded at a service centre or have a qualified engineer call round to upgrade their system. You don't have to buy this upgrade, Kickstart 1.2 owners can still use the drive by booting from floppy.

The whole disc can use FFS, an improvement on the Commodore 2090 which needs a slow partition on the disc. The A590 is simple to set up – just plug it in and switch on. Workbench will appear in seconds.

An automatic power supply detects when you have turned off the Amiga and powers down the hard drive. There is no through connector for the Amiga bus, but there is a scsi (pronounced skuzie) which will allow you to connect other hard drives, laser printers, scanners or a tape spooler.

Commodore remained vague about delivery dates. The two units at the show looked very finished, but were the only two in the country. European shipment may be held up while the unit undergoes tests to meet the stringent German radio emissions standards.

The A2500 Unix workstation made its British debut. Priced very competitively, it takes on the high end IBM style PCs and Acorn's new R140 version of the Archimedes in a rapidly growing marketplace.

An educational price of under £2,000 has been announced. This buys an A2620 card (reviewed in last month's *Amiga Computing*) and Unix software.

While Commodore claims that it is still a pre-production unit, a programmer who has worked on the R140 claims it looks more robust than the implementation Acorn uses.

The X-windows style front end is lightning fast and text scrolls very quickly even when masked by windows. It is not going to affect the home user, but the A2500 bodes well for the Amiga's future.

Commodore's rival to the Atari transputer workstation was on show. With one Com-

Turn to Page 8



War with a difference

WARFARE in the 21st century will be very different, or so says Mirrorsoft which has released Firezone, a PSS strategy game where tanks move at the speed of helicopters and beam weapons and energy shields have revolutionised land warfare. Firezone is a phased game which uses artificial intelligence, a scrolling map, a variety of tanks and the ability to create your own scenario.

Out now at £24.99.

New graphics tablet

THE world's first graphics tablet designed specifically for the Amiga is now available in the UK. Developed in Germany, the CRP Graphics Tablet comes in two models – one for A3 work, the other for A4.

And because it was created for the Amiga, it will work with all the leading paint, CAD and layout software packages available for the machine.

The tablet's surface is not only non-magnetic but also virtually indestructable – hot coffee can be easily wiped off without causing damage.

It features absolute zero, the facility which enables users to set two points between which a line can then be drawn automatically. And you can scale the surface and select either a horizontal or vertical aspect.

The CRP Tablet comes with an interface lead – for both Amiga 500 and 2000 – a steel tipped pen with an optical ballpoint nib, software driver and instruction manual. There is also a four button cursor and a dual adaptor for connection of pen and cursor.

An optical puck control provides a superior alternative to a mouse in that it offers a far higher degree of accuracy for precise drawing.

The A4 model costs £454.25, while the A3 version carries a price tag of £684.25 – with the optional puck adding an extra £96.60.

UK distributor of the CRP Graphics Tablet is Amiga specialists, Burocare Graphic Design. Tel: 01-907 3636.

Taking a byte out of the Apple

READYSOFT is to launch A-Max, a Macintosh emulator for the Amiga. Written by Simon Douglas it is a combination of software and hardware which allows it to use both 64k and 128k Apple roms for a high level of compatibility.

Unlike ST emulators, A-Max can read specially produced discs created on a Macintosh and can write Mac discs if you add a pukka Apple drive to the system. The hardware plugs into the disc drive port, which ensures compatibility with all Amigas and provides a simple pass through. It will not read Amiga discs when emulating a Macintosh, so a transfer program will be provided.

It has been tested with a lot of Macintosh software and works well; in some cases it will run Mac programs where the Mac II fails. Launched in the US this month, it will cost up to $200. A UK price has not been announced.

Software scenario



BD pool

Rack 'em up

ORLANDO is a name familiar to BBC Micro owners. He wrote Frak!, Zalaga and a number of Acornsoft classics. Now he has turned his attention to a wider range of micros and his first major program is about to be launched.

3D Pool is his new game for Firebird, and Orlando is working on the BBC, Commodore 64, Archimedes, ST and Amiga versions. The screen shot here is from a pre-production Archimedes disc, but "looks just like the Amiga version".

In the game you play a number of opponents: Flash Harry, Mighty Mike, Catford Kid and Fast Freddy. Win three rounds and you can take on "Maltese" Joe Barbara.

The game promises to be a real hustler. There are some impressive effects which allow you to walk around the table, even when the balls are still moving, practise trick shots, watch an opponent play and put spin on the ball.

According to Orlando, who popped into the *Amiga Computing* office to check out ERE's Billiards (see Page 72), Joe Barbara's children have mastered the BBC Micro version. Look out for it around April 18, and have £19.95 ready.

Tank tactics

VIVID IMAGES, the new Activision label, is to release Conqueror, the tank game based on the fractal landscape routines used in Virus. A somewhat slower game with an enhanced strategy element it is one for those who know their Chieftains from their Shermans.

Impressions is to launch Raider, an Oids-type game with 40 levels and scrolling background graphics. It follows a plot of civil uprising and space colonies, planets being destroyed and having to save a star system.

Your task: Visit four planets to collect a special powerplant which you must then blow up before time runs out. Sounds like an excuse for a Thrust II clone with a titchy spaceship, but time will tell.

Zip in space

COSMIC PIRATE is a great new game from Palace Software (expect a full review next month). It is released on the Outlaw label which Palace has reserved for games not written in-house.

In this case the programmers are Zippo Games – big in Japan with some top selling console games. Zippo's familiarity with custom chips shows with a loading sequence par excellence.

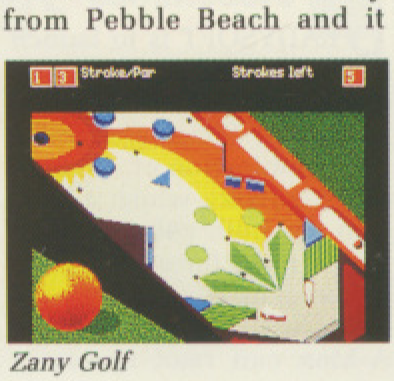


Cosmic Pirate

You take on the role of a rookie space pirate, learning about the illegal side of life on simulators before taking on the big fish out in space. It's a corker.

Goofy golf

IN the land of the true and free, the good ole US of A, they can play golf all day, and what a version of golf. Electronic Arts is more than a number one wood away from Pebble Beach and it shows with the wackiest golf game ever written. Totally enthralling, the best game from EA since Interceptor.



Zany Golf

But EA is also known for utilities. Most Amiga owners seem to have Deluxe Paint. Wealthy ones have Deluxe Paint II. Now get ready for Deluxe Paint III. Costing £80, it will cope with overscan to give a big display – ideal for desktop video work and half bright to give 64 colours. Look out for a review in the June issue.

Tough rally

MOTORSPORT can be tough, but no event is tougher than the Paris to Dakar rally. Coktel Vision will let you take part with Dakar '89. At the controls of a four wheel drive buggy, your driving skills are tested to the full.

The roads disappear into trails so you will have to navigate using the map supplied with the game. If that is not adventurous enough try the European Space Shuttle Hermes. Take on special missions, risk re-entry and landing.

Master move

DUNGEON MASTER may be the best reason to buy a memory expansion, but that won't be the case for long. Mirrorsoft has announced that a 512k version will be released this autumn and at the same price of £24.95 it may not be worth splashing out after all. That is of course until the next fabby game comes out...

Everything comes to those who wait. And if you have been waiting for Elite's Space Harrier the news is it's here. The Amiga implementation promises to be the best yet.

The French programmers have now signed up with Delphine Software, the computer games arm of a successful French record label. Look out for them over here distributed by Palace.

Scene at the show

From Page 7

modore transputer and two third party transputers in the PC slot, it shows promise.

Wolf-Dieter Schmidt from Commodore's Braunschweig research and development department has been working closely with Perihelion to get the system working with the Helios operating system.

He claimed that it was the most stable of transputer systems, although the demonstrations did not seem particularly fast. The project proves the strength of Commodore's R & D and while some educational establishments might get systems this year it's unlikely we will be seeing a commercial product for a couple of years.

The Commodore stand is often a haven for third party developers. The Weather Department Limited was offering hourly weather forecasts to television companies. Complete weather presentations which include dynamic sequences are captured from a satellite over the equator and then animated on an Amiga. The hardware used is an A2000 with a hard drive and 3 megs of ram linked to the studio with a Rendale genlock.

Rendale was at the show with a version of the 8802 genlock which plugs into the A2000 video slot and a very fast colour video digitiser.

Rumpus over 'wrong voltage' printers

A ROW has broken out following a warning from a major manufacturer that grey imports of two of its most popular printers may be unsafe.

This has resulted in a series of allegations and counterclaims being hurled between the main protagonists, Star Micronics UK and direct importers backed by a technical expert.

The models in question are the Star LC-10 and the LC-10C, both extensively used with the Amiga.

Round one in the battle saw Roger Bayley of Star circularise the company's dealers advising them to be on the lookout for printers designed for the European market but brought into the UK instead.

He said he was concerned over the safety aspect of the imports in that, although identical in every other aspect, they were fitted with a 220 volt power supply with a 10 per cent plus or minus variant instead of the UK 240 volt. He suggested that anyone with a grey import should return it.

However, Bayley's comments were dismissed as scaremongering by both a leading distributor of the European badged models – the NX1000 – and an independent technical expert.

"What is really behind this is that we are able to sell at much lower prices than Star's official dealers – and this is just sour grapes on their part", insisted Malcolm Jamieson, whose Crown Computer Products of Burscough, Lancashire, is a leading importer.

Consulted on the safety aspect, Mike Cook, senior lecturer in physics at Manchester Polytechnic, commented: "I'd eat my hat if there was any cause for concern because a printer had a 220 volt power supply as opposed to 240 volts. It simply doesn't make a scrap of difference to safety or anything else".

But that wasn't the end of the matter. Round two saw Bayley further allege: "If you run a 220 machine at 240, it will not give you three years' life, with the lower voltage unit failing faster".

He also claimed that UK voltage variance was much greater than appreciated, quoting his own Surrey home – "between 180 and 300 volts" – as an example.

This was subsequently described by Jamieson as "symptomatic of someone losing an argument thrashing around in desperation".

Mike Cook said of Bayley's remarks: "What he's saying doesn't actually make sense technically".

And he advised Bayley to immediately contact his local Electricity Board about his home situation. "If what he says is true, he should be concerned that his television set may blow up.

"The Electricity Board has to keep the voltage variant within 10 per cent – or face a fine".



Printers await distribution at Crown Computer Products

Commodore has a new president

COMMODORE International has announced the appointment of a new president, 43-year-old Mehdi Ali, a managing director of Dillon, Read & Company.

Mr Ali has been a member of Commodore's board since August 1988 and has served the company as a special adviser for three years.

He is a Yale graduate who worked for Morgan Guaranty from 1969 to 1976 before joining General Motors as a vice president on the financial staff. He then went to Pepsico in the same capacity in 1980 and in 1984 moved to Dillon Read. He will work from the company's New York office.

In America he said he hoped to capitalise on the significant opportunities that lie ahead for Commodore.

The chairman of the company, Toronto investor Irving Gould, said: "We are fortunate that Mr Ali has agreed to expand the role he has been playing in the restructuring of Commodore into a major competitor in the microcomputer industry".

Mr Ali fills the job vacant since 1987 when Thomas Rattigan left. After he "resigned", Mr Rattigan filed a $9 million lawsuit against Commodore alleging breach of contract.

New links for history, science fiction

THREE new categories on MicroLink are underlining the wide range of interests that can benefit from this service.

Science fiction buffs and local historians now have sections devoted to them and the popular ExpertLink board has changed emphasis with the new name – BusinessLink.

Bristol historian Mike Gardener publishes the journal Exploring Local History and has helped to set up MicroLink's new local history category.

"There is a vast and nationwide interest in local history but so far it has been fragmented", he said. "Everyone wants to get into a wider field but there has been no way for individuals or societies to get together for discussion.

"MicroLink can solve that problem by providing a platform or forum for this massive subject".

Colin Campbell, a photographer from Stirling, is helping to organise MicroLink's new science fiction category.

Basing content on the fanzine publications that are the most popular journals for sci-fi fans, he reviews books, movies and also hopes to deal with television programmes.

Duncan Baker derived real benefit from using MicroLink in his own company and has now taken over the day-to-day running of the new BusinessLink section.

He sees it as a business club where members can benefit from the exchange of ideas and experience backed by a reinforced team of experts.

With his wife, Duncan runs Lydbury English Centre, specialising in residential courses in English as a foreign language for oveseas business and professional people.

"I look on the business-to-business category as being particular value to smaller businesses such as ourselves", he said.

Flying in

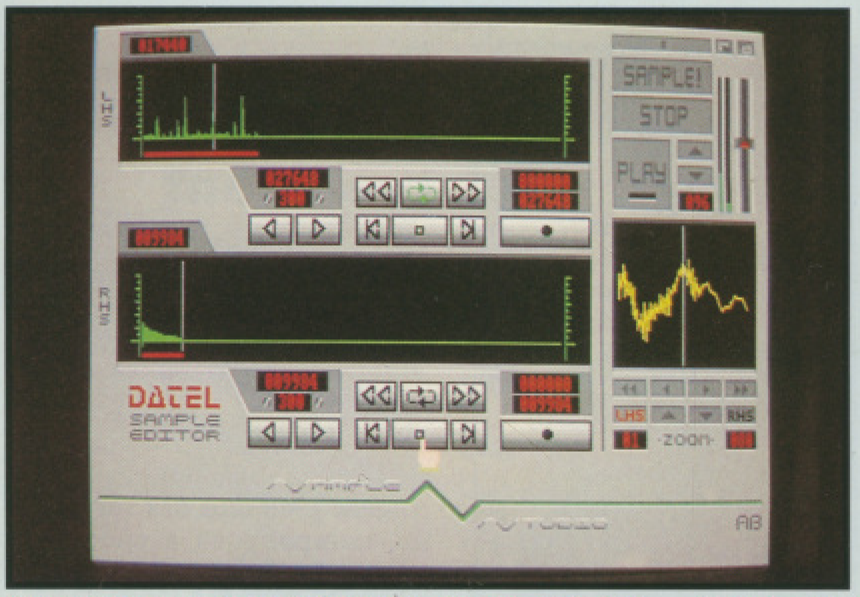
ELITE (0922 55852) has released an Amiga version of the coin-op Space Harrier. With 10 levels, the player attempts to save Dragon Land from aliens in a bid to rid space of evil forces. Price £19.99.

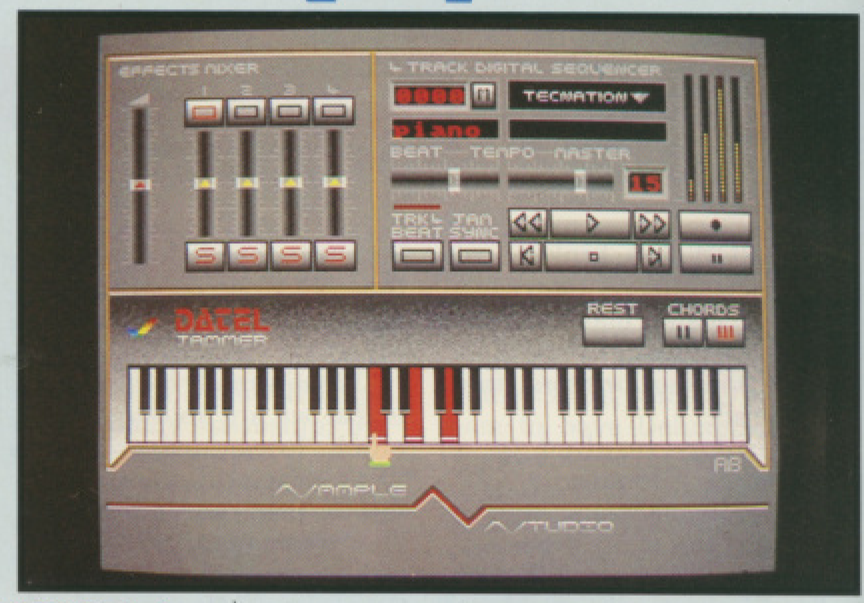
Video aid

MAZE Technology has launched Videostudio, a post production utilities suite that runs on the Amiga A500, 1000 and 2000.

Aimed at the professional or serious amateur video maker providing titling and other post production facilities, it costs £92.

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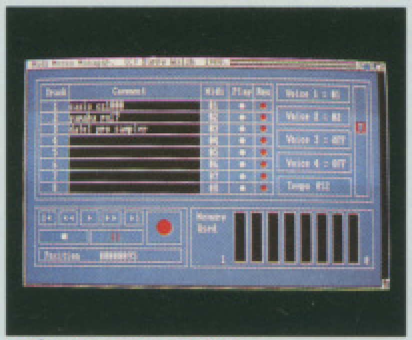


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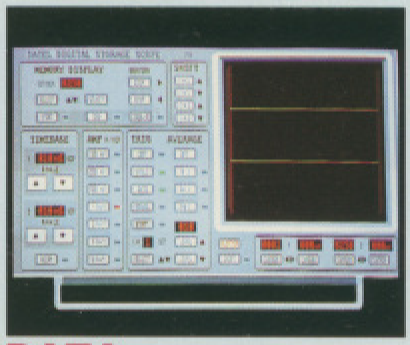


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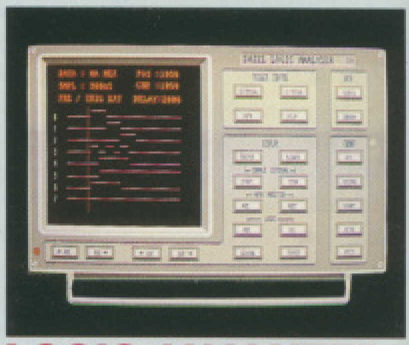
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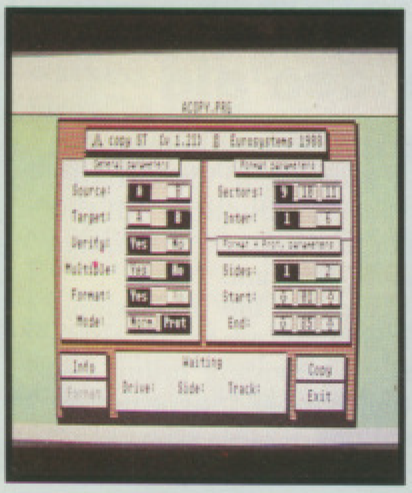
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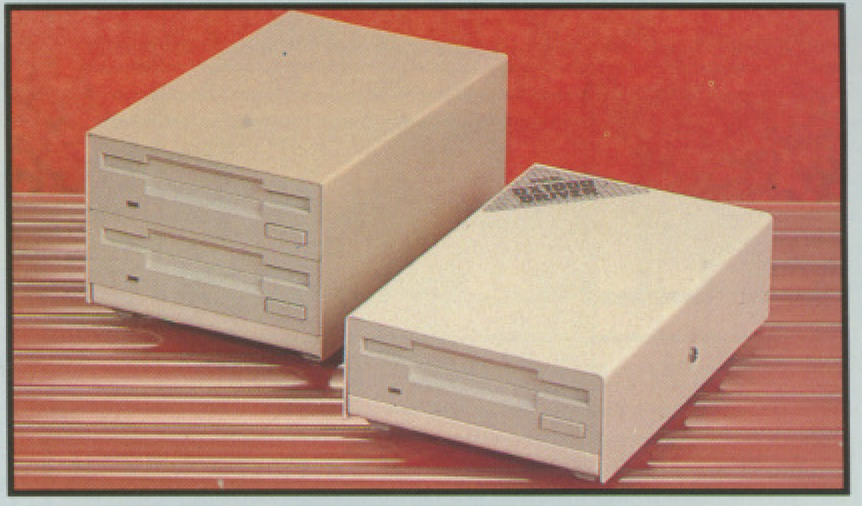
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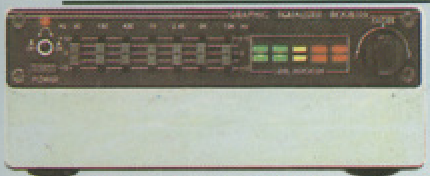
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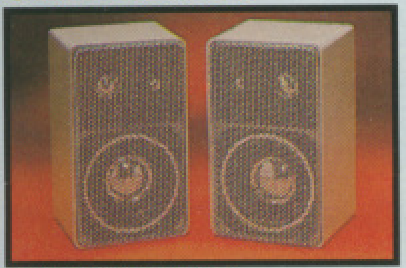
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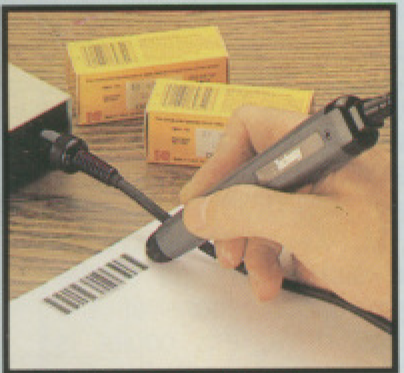
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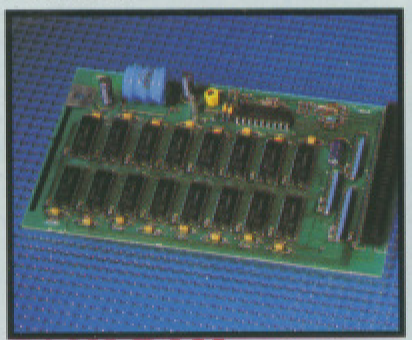


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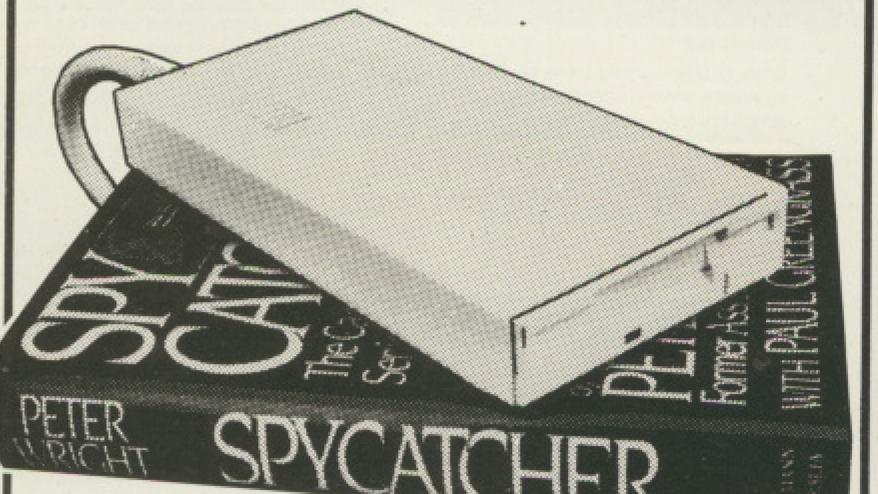
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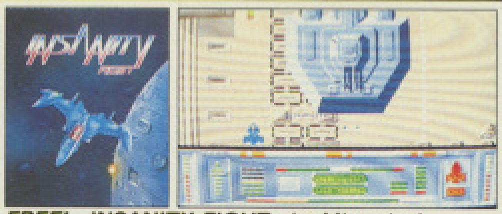
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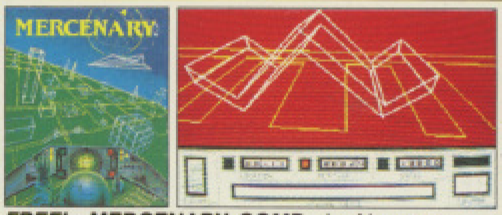
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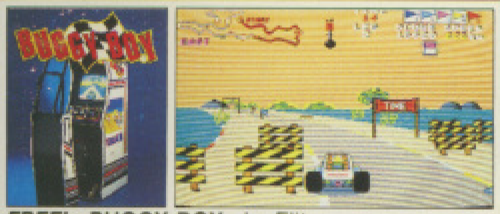
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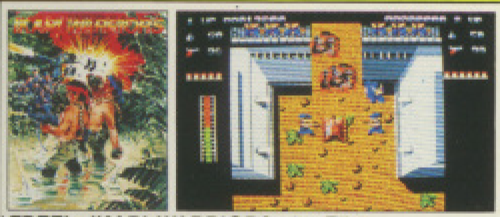
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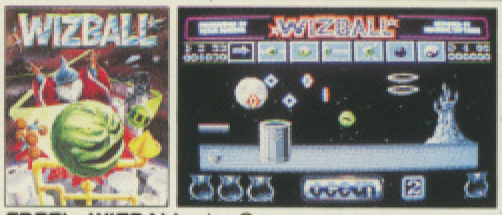
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Into the famous dungeon

Dave Eriksson masters a mouse-driven adventure which has all the atmosphere of a classical textual game

DUNGEON MASTER from Mirrorsoft was an out and out success on the ST and Amiga users have had to wait ages to get their hands on the promised conversion. Mirrorsoft said no review copies were available – apparently it just could not keep up with the demand.

I could not wait. A few telephone calls located a shop with it in stock, and shortly afterwards my present to myself was loading on my Amiga.

There is one major snag – it needs one megabyte to run. If ever you need a good reason to get that plug-in ram pack Dungeon Master is it. Additional ram is not cheap and while Commodore may gain, Mirrorsoft will certainly curse the programmers' short sightedness. Still, it is an investment you won't regret. And a 512k version will be out this spring.

The story is classic. An almost god-like wizard has helped maintain peace and prosperity in the world. He believes that at long last he has found a way to retrieve and harness the power of a miraculous gem hidden deep under his mountain retreat.

His plans go wrong and he is split into two, one good and one evil. His evil self, Lord Chaos, sets up a hideous empire within the halls and passages under the mountain. The good, now called Librasulus, is forced to exist in no-space away from our material plane.

The rumour of great treasures hidden under the mountain attracted many adventurers. All were caught by Lord Chaos or his evil minions.

At last Librasulus manages to make contact. He tells of 24 adventurers trapped within the mountain. They were the best of the raiders, *(no, not the LA Raiders – Ed)* and the evil Lord has them displayed in his Hall of Champions, each contained within a magic mirror.



In a final effort to defeat the evil that he set loose, Librasulus enables you to enter the Hall of Champions and select up to four of these lost souls. You may resurrect them as they were, or reincarnate them with new names and no knowledge of their previous existence. With these aides, you are bidden to destroy all the evil that you meet and to finally dispose of Lord Chaos himself.

The graphics are brilliant, mouse control slick and the whole adventure takes place in real time. All your actions are controlled with the mouse.

There are 14 dungeon levels and it is imperative to draw accurate maps as you go along. Although the levels seem to differ slightly, you should be able to map each on a 34 x 34 grid.

First, select your team from the Hall of Champions. There are no monsters on this level, so take your time. Point and click on a magic mirror and the characters basic stats and what they have with them will be displayed. Point, click and hold on the character's eye and further stats, together with skill ratings, will appear.

RESURRECTED characters retain skills as novice fighters, apprentices wizards and so on, but reincarnations lose them. The more your men fight, or cast spells, the faster they improve their ratings. The rating system from low to high is neophyte, novice, apprentice,

journeyman, craftsman, artisan, adept, expert and master. Make sure fighters practice with their swords at every opportunity. Just throwing daggers down an empty corridor can help.

Principle attributes are health, stamina and mana. The last of these is used up as spells are cast and all are recovered as time passes or the team sleeps. Secondary attributes are strength, dexterity, wisdom, vitality, anti-magic and anti-fire. Attributes increase as higher ratings are achieved.

Characters with no magic at the start may gain mana either from a high level potion or by holding one of the magic weapons found in the dungeons. Having a little mana will enable them to cast enough spells to get an initial skill rating, and hence more mana.

Skills may be gained as one or all of the following: Fighter, ninja, wizard and priest. Parties travel through the dungeons two abreast. Have your best armoured fighters at the front and magic users or ninjas – those that throw or shoot – at the rear.

Magic is vital to the game. A well placed fireball or the ability to create healing potions could well save your party from an early demise.

To cast a spell, or create a potion, characters must select a series of symbols from a menu towards the top right of the screen. There are four groups of six symbols, and you may choose one from each group. Some spells need only two symbols.

The first symbol relates to the power of the spell, so, looking at the chart and translating both LO FUL IR and MON FUL IR are fireballs but the latter is very much more powerful. Likewise LO VI and MON VI will both create healing potions, but the second is much stronger.

Only as magic users increase their skill ratings will they be able to cast ▶



the stronger spells.

Information on spells can be found on scrolls scattered around the dungeons. If you have the odd hour to spare you can always systematically try all possible combinations – there are 1,548 of them. Of course only 258 need be tested, as the first symbol represents the strength of the spell and does not alter its effect.

Even before the team enters the dungeons proper, get everyone to cast a simple wizard spell such as LO FUL (create light). Persevere as it may not work, but even trying counts towards a gain in rating and extra mana – you will need all you can get before long.

Once you have an empty flask, start on the priestly spell LO VI. Drink the potion and try again. A gain in either wizard or priestly rating gives the character extra mana. This may then be used for either type of spell.

You may not need all your characters to be priests, but the mana gained in this fashion may also be put to good use casting offensive spells like fireballs.



Down on the lowest level the dragon guards the Power Gem



On the ninth level two giant rats are caught in the doorway



Nasty giant scorpions roam on level 10

THE first level is magically lit; all other levels will need either a torch or a create light spell. Torches can be found along the way, as can food and water.

Initially your party will own very little. Later you will have to think carefully about what to carry with you and what to leave behind. There is a limit to the number of items and the weight carried. The more carried, the slower the movement and the more sustenance required.

Once you have chosen your team, save the game. It is easy to die in Dungeon Master. Although it takes up many discs, I would recommend saving on to a separate disc before descending to a new level. You can then return to any level, either to find something you think you have missed or to complete a level more efficiently.

You must find a way to rid the dungeons of Lord Chaos. To do this you will need Librasulus' Firestaff and the Power Gem. Each dungeon level has a series of puzzles to solve before it gives up clues or items that will aid further progress.

The going gets tougher the deeper you get. There are 25 different types of monsters. The graphics and animation are superb.

Scattered thinly throughout the dungeons are altars of rebirth. To use them pick up the bones of a dead companion and place them on the altar. Another more drastic way is to face a wall and launch a fireball. This will kill everyone and you will be offered the chance to restart the game from your last saved position.

On the second level you must find the 11 keys to doors which lead to stairs down to level three. There are a few flasks, some simple armour and several weapons. Look out for a sword hidden behind a secret panel in a room near the stairs.

The first monsters met are screamers and mummies. Screamer slices will supplement your diet – waste not, want not! Some doors are operated by pushing a button on the wall, rather like lift doors. Wherever you can, get monsters to attack you from a doorway and then close the door on them.

Examine any scrolls by holding them up to the eye of a character and clicking the mouse button.

Level three begins with a long straight passage. Examine the walls carefully. You will find a small button – push it. There are many such hidden rooms and passages, often with something useful inside.

You have to find a number of keys hidden within six puzzle snares. Each set of puzzles lies behind a door leading from one large chamber. The latest monsters, blue trolls and rock monsters, can be pretty fearsome, so remember the door trick.

One puzzle requires spell LO ZO that opens doors, and another may

require you to reduce the party's weight so that you can move faster. You will need healing potions after fighting monsters.

New monsters appearing on level four are pink worms, giant wasps and ghosts. The worms are really tough and the ghosts will need a new spell, LO DES EW, to destroy them.

Worms also add to your food stocks. If you are carrying too much, picking up each piece and throwing it ahead of you will help the thrower's ninja skills.

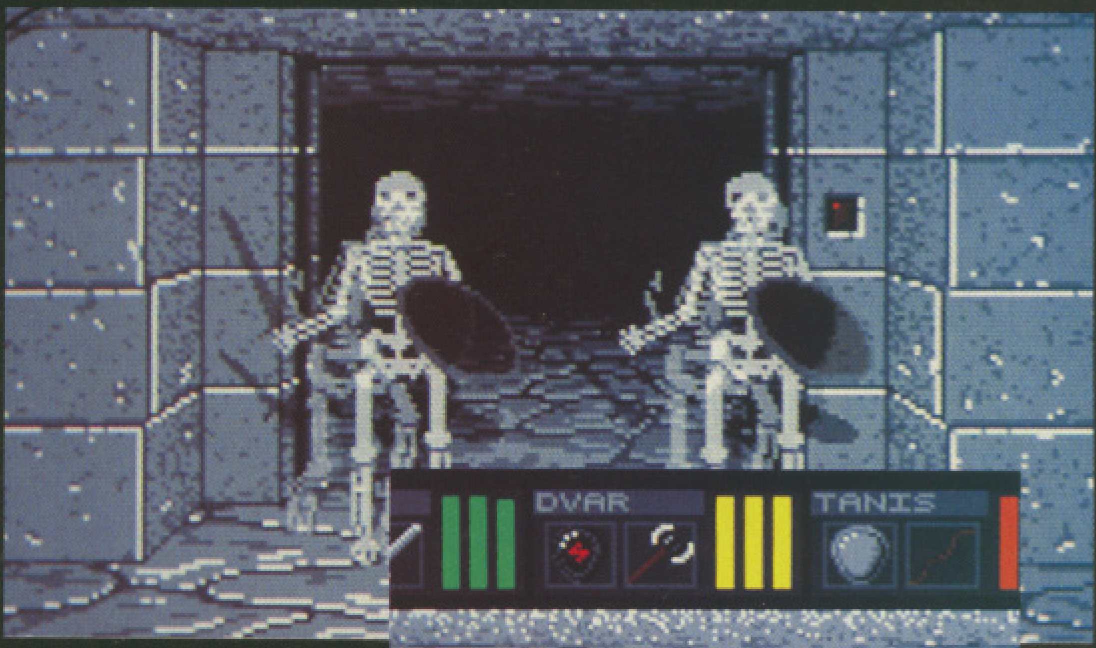
This level has secret rooms hidden by normal walls. There is no easy way of finding them you just have to try walking into likely walls. Accurate mapping will help, but locating rooms can be a long laborious process.

Level five has some interesting puzzles including one where trapdoors open and close as you move around a large room and another where you must choose the right directions to walk into a series of teleport fields to get through to the rooms beyond. If you can't cope with these there are stairs up from level six beyond the traps.

Green tentacled monsters spit poison and some unpleasant flying snakes will prove troublesome. Poisoning can be cured with potion LO VI BRO.

Level six has a batch of difficult puzzles. Be prepared to spend some time sorting them out. Skeletons are easy game. Beholders – floating tentacled heads – can throw a mean fireball. Hit them when their eyes are closed.

The two Vorpal swords will be very useful against ghosts and other non-material beings.



The angry beholders didn't join the party because they had nobody to dance with



The 14th level, and the Power Gem is ready to be attached to the Firestaff

Level seven is the home of the Firestaff, but this is inaccessible until the Ra keys and the Master key have been retrieved from deeper levels. The only monsters are stone golems – very tough and I do not think they can be beaten without the help of closing doorways.

Level eight is mainly open space with fireballs zooming around. Find the green switch that deactivates the force fields which reflect the fireballs. Wall switches hide secret rooms, and in one hidden passage count 26 paces, turn right and wait.

This level introduces the nasty little gremlins that steal whatever the members of your team are holding in their left hands. Have fireballs ready so that you can get back stolen shields.

Giant rats on level nine can be quite a problem, but rat drumsticks make a feast. Small wizards are quick on their feet but are not that strong, on the other hand mini dinosaurs are slow but tough. Close doors behind you, as rats breed in some rooms and can catch you unaware.

There is a hidden stairway opened with a skeleton key – look for skulls on the walls. Nearby is a good room to hole up, both now and in the future. It has water and is near a rat breeding room that will supply food.



Stats report Mia, showing what she is carrying

▶

Level 10 has a few good puzzles, a small supply of nasty scorpions and some interesting finds. There is entry to the hidden stairway but as there do not appear to be enough keys for all the entrances, I would not use one here.

Level 11 starts with a puzzle that should have you going in both directions. A useful sword is at the end of a room filled with flying poison darts. Lighten your load to move quickly.

With your one key you have choice of three doors, each of which leads to stairs. Each will involve a prolonged fight. The choice is blue trolls, wasps or particularly nasty water monsters.

Stepping on the pressure plate twice as you enter level 12 deactivates hidden trapdoors. You must now deal with the Chaos Knights. These are real tough cookies. You can kill the knights fairly easily using a door and a magic box to freeze them, but meet them in the open and its goodnight.

Giant spiders are not such a problem but there can be a lot of them. Phantoms cast both poison clouds and fireballs so have your Vorpal swords at the ready and cast a heavy duty fireshield spell quickly (MON FUL BRO NETA).

Lord Chaos is on level 13 (where else?) guarded by elite demons and fire monsters. To get him you will need the Firestaff and the Power Gem from level 14 which is guarded by the dragon.

Approach the dragon from behind and freeze him before attacking. You will need a special spell to free the Power Gem and once it is placed on the Firestaff the only exit is back up to level 13 and your final confrontation with Lord Chaos.

Dungeon Master is the most stunning role playing game I have seen on the Amiga. It does not alter the fact that games like Ultima and Bard's Tale are, and will remain, top line adventures, but it does add a new dimension that can only encourage additional games in the same vein.

REPORT CARD

Dungeon Master
Mirrorsoft
£29.99

STORY LINE
Classic fantasy adventure in the D&D tradition

AURA
Go down those stairs and live on a knife edge. Excellent sound effects heighten the awareness

STAYING POWER
Plenty to puzzle over and many different monsters to be tamed

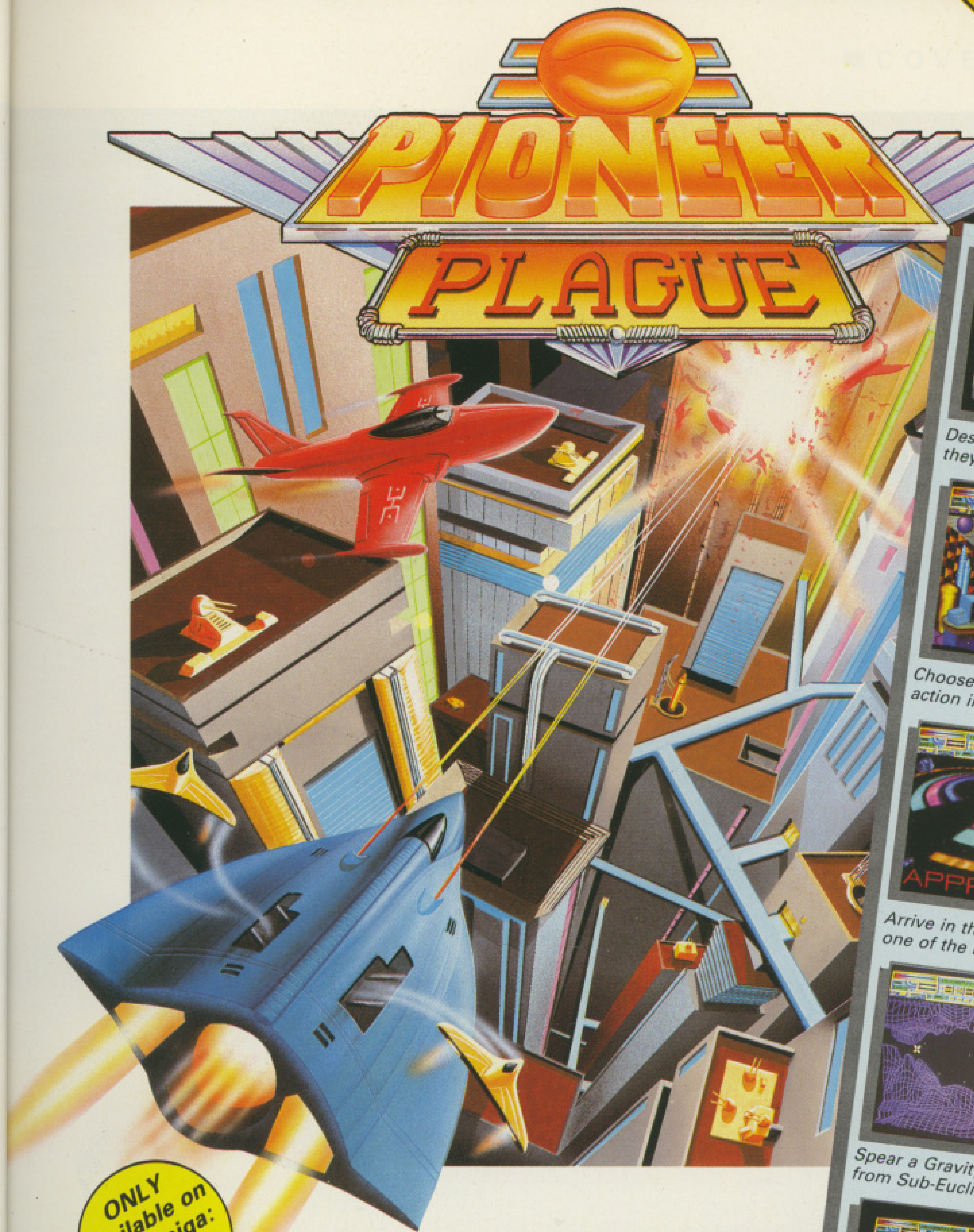
GAMEPLAY
Mouse control, magic and skills, all create a most viable scenario

VALUE
Hundreds of hours of concentration required

DIFFICULTY
Easy to miss some vital clues if you do not take great care

OVERALL 97%
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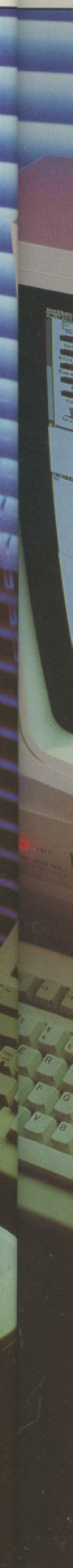
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Big screen hero

Cinemascope for the Amiga has arrived, and it is every bit as exciting as a trip to the movies. Simon Rockman gets to grips with one of the first production prototypes – The Viking



XEROX invented the Wimps system Workbench is based upon. It is supposed to emulate a desk. The idea is that you only work in one area at a time but want everything else to be handy.

Looking around my desk I've got a filofax open to a page which reminds me to call a software house, a couple of post-it notes with similar messages, some readers' letters, a notepad, some faxes and of course my Amiga. But when I look to the computer the analogy fails, because I've filled the screen with Protext.

If I wanted to have lots of things on the screen at once I'd need to make the area I used for typing smaller, and an 80 column by 25 line display is a little pokey as it is.

The screens that Xerox expected people to use were much larger, leaving room for things like a calculator, comms program or spreadsheet next to the main program. Now such a screen is available for the Amiga.

The Viking 2000 monitor is the result of a collaboration between Commodore and Moniterm. It relies on a custom chip designed by Headley Davis at Commodore Amiga.

The Commodore product which uses the chip is the long awaited A2024 monitor. It is physically smaller than the Viking but works in the the same way. Perhaps the major advantage of the 2024 is that it will work with an A500 because the custom circuitry is inside the monitor, while the Viking uses a board which plugs into the Amiga 2000's video slot.

Moniterm's purchase of the rights to use the Headley chip has been more than a trifle political. Commodore has had to weigh up the advantages of using Moniterm, an established manufacturer of big screens for the Apple Mac, against selling a product it had worked on to another company which would make the profits.

I think it made the right decision. It's far better that the monitors get out there and help the Amiga's reputation in "enemy" territory than Commodore selling fewer at an increased profit to Amiga owners.

Its design is very clever. With a normal screen the whole picture is updated, or refreshed, 50 times a second. The interlace mode gets more detail on to the screen by having twice as many lines, but it can only update every other line in the same time. This leads to interlace flicker.

What the flicker fixer – reviewed last August – does is store the picture in separate memory, updating every other line, but then displaying every line from the memory. It needs an expensive multisync monitor, but works well.

The Viking takes this a step further. The Amiga sends out six screens and the Headley chip builds them up like a patchwork to make one big display. The result is a screen 1,008 pixels wide and 1,008 pixels deep. Strangely enough, Commodore claims 1,008 by 1,024 for the A2024, but the difference might well be due to the Commodore claim coming from design specs while Moniterm has real chips.

The shortcoming of the system is that the update rate is cut drastically. Anything which moves rapidly across the screen, such as the mouse pointer, acquires a ghost image while it is moving. Text tears as it scrolls, and window outlines look funny while they are being dragged. The static display is rock steady, a pleasure to look at thanks to the P194 phosphor.

The display is only black and white the price of a colour screen with the necessary resolution being prohibitive. Either way the image is limited, like Workbench, to four colours or shades of grey.

The amazing thing is that with all this screen mucking about the software still works. Only programs which open a standard Workbench window will use the big display, although it is probable that programs will be written to make use of it. Software which is not compatible with the big screen mode functions perfectly, using the standard resolution and looking a little daunting on a big screen.

A fair bit of software is needed to drive the Viking. Much of it will be included with Workbench 1.4. If you thought 1.3 was a major upgrade you are in for a shock, it was a mere tweak compared with what we can ▶


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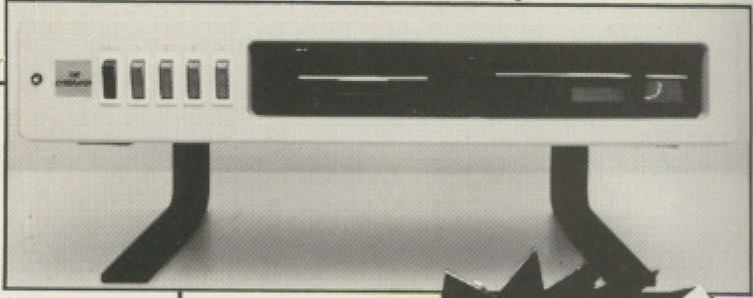
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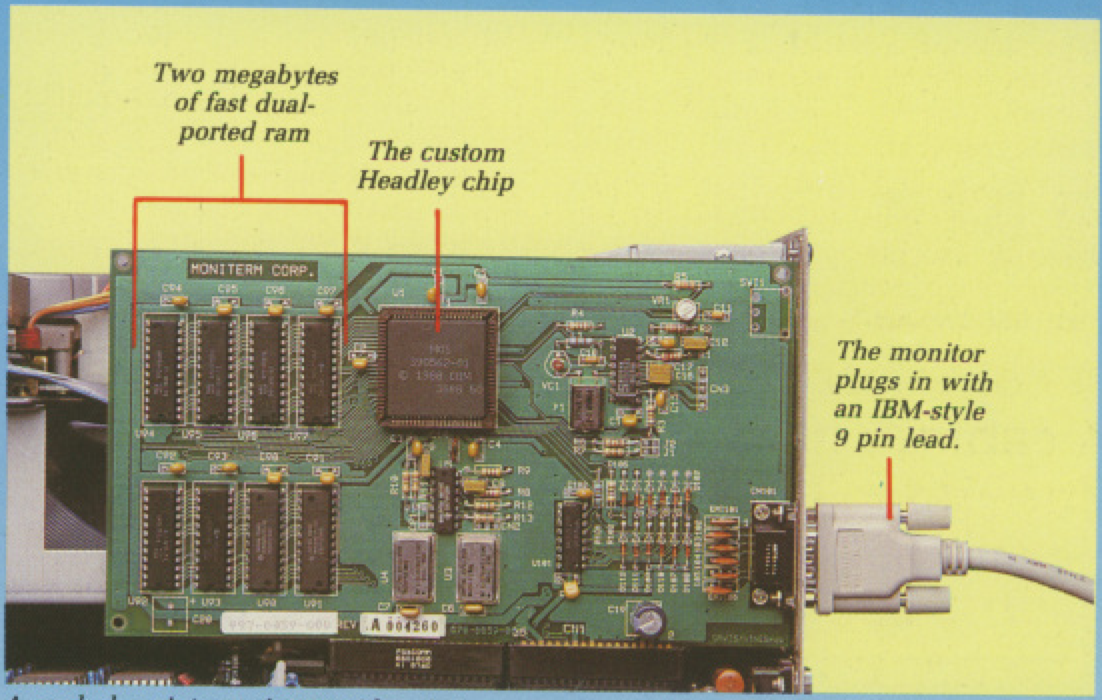
expect with 1.4. And if you thought it was late you ain't seen nothing yet. Workbench 1.4 won't be finished this year.

In the interim Commodore supplies a Jumpstart disc. It is free to registered developers, who should get hold of a copy to make sure that their programs will be 1.4 compatible. There is a script file – like startup-sequence – which copies all the new utilities into the right places on a hard disc. But you don't need to change roms or your libraries.

A utility called RamKick loads into ram bits of Kickstart which the Viking needs and then protects them from being overwritten. When the computer is reset with a Control–Amiga–Amiga it reboots but uses the new Kickstart.

A special script file loads updated graphics, intuition, and exec libraries to support the Viking and then reboots the system to make those RamKicked libraries accessible to all system software. A command called Setmonitor then tells the system that you have a big screen attached.

To flip into the special mode a utility called ResetWB is provided. It will let you turn on interlace without having to re-boot the system but insists that only "proper" windows are used and so objects to some



A card plugs into an A2000 video slot

programs – like VirusX – which tread the wrong side of the rules.

The mode is chosen from preferences. This has meant the change serial box has been squeezed in with the change printer gadget to make room for an A2024 gadget. This gives you the choice of leaving the mode off, set to a 10Hz or 15Hz refresh rate. The 15Hz mode gives a clearer display but needs more processor time and so programs may run a little slower.

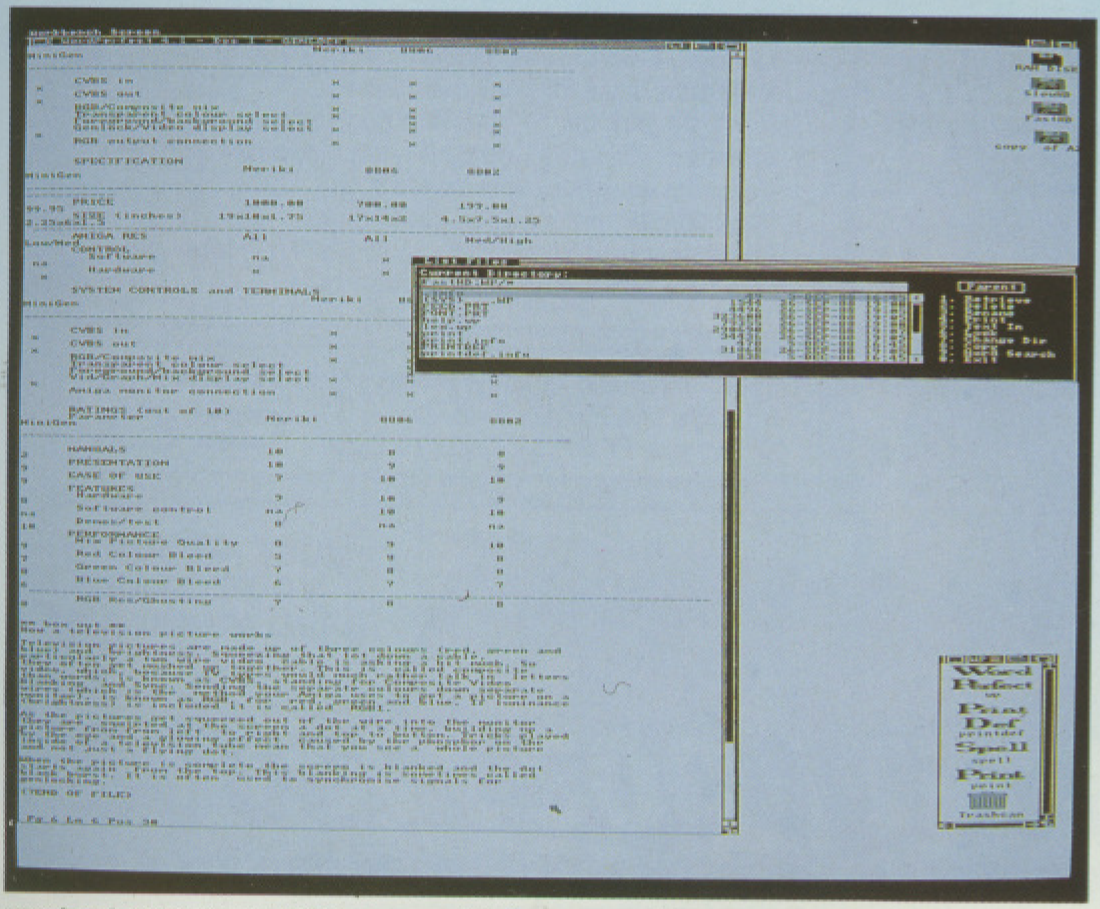
The depth of the workbench can be set to 1 or 2 bits. A 1 bit display will only give a black and white display, but takes up less memory than the 2 bit with four shades of grey.

Memory is important. The Headley can only use chip ram. This is the memory the blitter can access, and can be used for video displays. At present Amigas have 512k of chip ram and once you have a couple of windows behind each other chip ram gets used up very quickly. This problem will be fixed with the Enhanced Chip Set, ECS.

The monitor was reviewed both with a standard Amiga and a beta test version of ECS. Windows which could not be dragged to fill the screen on a normal A2000 worked properly under ECS. One thing the Moniterm won't do is use the "productivity" mode which ECS provides. This gives a flicker-free 640 x 480 four colour display with a multisync monitor. But the Viking only works in old modes and its own enhanced mode.

SOFTWARE support is limited, partly because of the chip ram limitation but mainly because of the way applications open a screen. Anything which opens a window with one of those funny little squares in the bottom right hand corner should be draggable so that it fills the whole screen. CLI works, so does WordPerfect, but some programs, notably Protext, don't know that it is possible to have a screen bigger than 640 x 200 and make that the limit. One or two programs, for example,

▶



WordPerfect can be used full screen with the new monitor

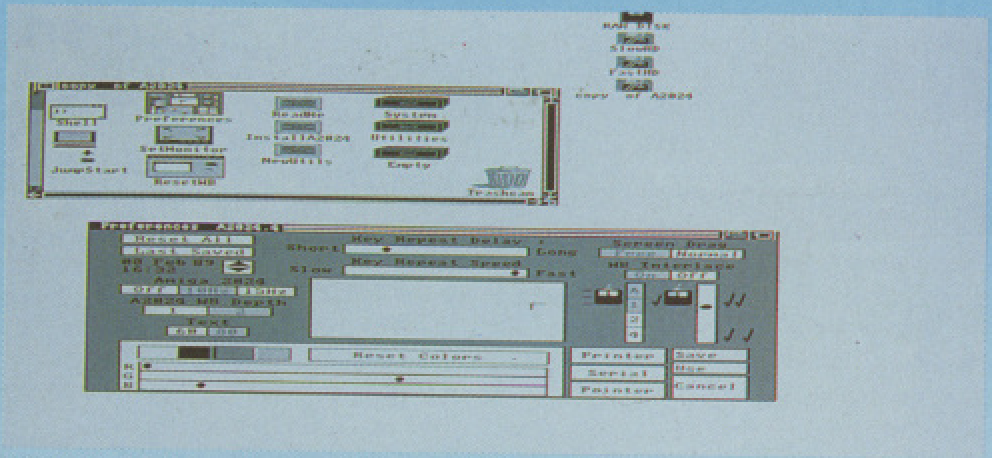
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the system clock supplied with 1.2 gurued.

Some developers have had prototype machines for a while. Gold Disk's Professional Page and Infinity's Shakespeare DTP programs have been customised for the 2024. Dale Luck, one of the people on the original Amiga development team, has implemented the X-windows user interface.

A machine with this monitor and the new Amiga Unix operating system will take on the best of the expensive workstations.

The Moniterm will cost around £1,700. If you bear in mind that this includes 2 meg of high specification ram, and that similar displays for the Mac or IBM type PC cost between £1,500 and £3,000 without providing the same level of software compatibility, it is not that expensive. But for the moment my budget confines me to a 1084.



An A2024 desktop showing the new utilities and preferences – each of which fills a normal screen

REPORT CARD

Moniterm Viking 1
Applied Technology Marketing
0642 225824
Around £1,700

USEFULNESS ....
A big screen is great, the ability to see several tasks running at once is a boon. Limited by mono display.

EASE OF USE........
Needs an Amiga 2000, but is simple to set up and use in standard modes.

INTUITION...........
The early 1.4 Jumpstart works well enough. High level of existing software compatibility is useful.

SPEED....................
Scrolling text smears, with some of the slower programs like WordPerfect showing some tears in the text.

VALUE ....
An expensive peripheral, but it is still good value to power users.

OVERALL 68%
Interesting, well designed and built but it is limited by its high price.

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VISA

The perfect triangle

Graham Wayne goes to see the company which married the Amiga to commercial video and talks to the directors who are scaling new heights

PAM is smart, she's efficient but friendly, and she can tell the difference between RGB and the BBC. But best of all, between making excellent coffee – which she serves without the resentful look of someone who has much better things to do with her time – she grabs hold of the controls of the video editing suite and imposes her will on the bewildering array of equipment before her.

Skill, concern and efficiency are the vital components of any service company. Pam displays the best characteristics of Triangle, but it's the perspicacity of the three founder directors which serves to demonstrate the business philosophy and attitudes of the company to its clients. And the emphasis of the interview that followed remained firmly on the quality of the many related services Triangle provides.

David Weaver was operating a tape duplication company called Video Action Services, which today forms part of the Triangle geometry. He wanted to get into programme production, and after meeting Peter Barrett and John Chalk, who were already producing high quality promo and corporate videos, the three sides of the Triangle management were drawn.

JOHN discovered the then brand new Amiga 1000 in 1985. He had persistent visions of a new and exciting range of possibilities for the machine when used in conjunction with video, mainly for titling and graphics.

Triangle Television took it upon themselves to break all the new ground needed to solve the problems in getting a usable signal on to video tape at a quality that would be acceptable to their clients. Later they went on to produce broadcast quality computer graphics using the A2000.

But it was thanks to the then Commodore MD, Chris Kady, that Triangle became an Amiga dealer. They showed him their latest video, a promo of Skyfox for Electronic Arts featuring graphics produced on the Amiga, which so impressed Kady that he urged them to combine their technical expertise and recently gained insights into Amigaware in a dealership targeted at the previously disregarded market of programme production.

Triangle claim, not without substance, that it was they who demonstrated to Commodore the potential of the machine in this area. By this time, they were using it "for virtually everything we did", says John Chalk.

Tracing the steady rise of Triangular fortune, the first point David mentions is that of expertise. "You can't pop into your local computer shop and say – look, I've got a low-band VTR, or a Video 8 system.... any kind of machine for that matter.... and I want to buy a genlock to use with an Amiga. Basically, they don't know what you're talking about.

"Because we specialised in this area it meant we could learn. We came to know a lot about it. We didn't stock anything else, just Amigas and half a dozen bits of software, which meant you can put all your resources into learning the stuff backwards".

These days, Triangle stock a slightly expanded range of software but they stick to their original principles. They admit to being tempted by the Archimedes for a while, but eventually had to discount it due to the lack of software support.

The directors agreed that they didn't want to get into a situation where there was conflict between the systems on offer to their customers and they coupled this with the income derived from the diverse number of services they offer, which today include tape duplication, various bureaux services, training and a plush, up-market editing suite in addition to their Commodore dealership.

Peter claims: "We're not dependant on selling Amigas. When you're talking to a customer, you're not thinking 'I've got to sell this machine in order to get paid this week' or 'I'm going to sell this item, because I make a better margin on it'. In fact, sometimes we actually put people off. People do ring up wanting the Amiga to do quite inappropriate things and we say to them 'look, you don't actually want an Amiga at all'".

TRIANGLE boast a diverse clientele, which includes regional police forces, several advertising agencies and many individuals, as well as other programme production companies.

Programme makers quickly come to realise the potential for improving the quality of their productions by using



The Triangle editing suite

the Amiga to create effects, graphics and animation that would otherwise be prohibitively expensive using dedicated systems.

An awareness of the potential often requires thorough explanation and demonstration, which Triangle are only too pleased to provide, so long as they end up selling something.

Inquiries are usually directed towards making titles for programmes, but, as David explains: "Once you start talking to them and you tell them that titling only takes up 10 per cent of the power of the machine, they realise there's a whole new world opening up. The Amiga is capable of so much more".

HE goes on to cite the case of NUPE, who produce elaborate videos with many different forms of graphic input from the Amiga, illustrating such complex issues as pay structure and industrial relations. NUPE had to be shown the potential of the system and in a way that they could understand.

David continues: "Some of our customers are retired. We have one chap who makes videos on how to tie knots. He's written books on it and now he's making videos doing animated knots on the Amiga. He's really built his system up. He started with a basic system but now he's got seven megs of memory installed. He really got into it".

On the subject of hardware, I asked what kind of systems they supplied to serious users. From the answers, it seemed that Triangle were not concerned with selling as big a system as they could, but fitting the system to the client, although Peter admits "our biggest system is the A2000 with 2 floppy drives, hard disc, 9 meg of memory with a turbo board and a 32 bit processor".

David, who seems to be interrupt driven, interjects: "That's what we call our Monster Machine. It's the system we supply to ad agencies who want the meanest machine they can get, crammed with every single thing you could imagine".

Ever the sensible one, Peter points out: "But of course the entry level machine is still an A500. If you have the modulator, you can connect the composite video out to your VCR and record straight off the Amiga on to videotape for £399".

SOFTWARE is important. The most popular items are Fantavision, for its ease of use; Pro Video, a comprehensive titling package; D-Paint 2, as much for its widespread acceptance as a defacto standard as for its wide ranging features, and Sculpt 3D.

Training is another important angle of the Triangle set up. This service comprises two distinct parts, free (if you buy a system) and a chargeable service.

John Chalk will spend time with the client showing him or her how it all goes together. This takes an hour for ▶



A Triangle video explains complex issues such as pay and industrial relations

◀

the smaller configurations and up to half a day for the larger set ups. They call the service an introduction, where they will demonstrate how to wire it up, run it and look after your work.

As David puts it: "Basically we show them how to get started". John: "The introduction is tailored to their need. I normally ask exactly what they want to do. Otherwise, I can spend time showing them things about the system, but half the time they might be learning nothing that actually applies to their needs.

"The idea is that they can go straight back home, plug it in and start doing what they bought the machine for. But a lot of our customers don't do the introduction straight away. They take the machine home, use it and write down a long list of questions when they get confused and then come back and say 'How do I do this?' You can't predict how they're going to get on with the system, or what problems they will have".

For more specialised applications Triangle also run-training schemes at various levels of technical skill and cost, often lasting several weeks, especially when using the Amiga is combined with the technical aspects of editing, which they are ideally placed to demonstrate using the sophisticated high-band/lo-band U-matic editing suite on the premises.

THE atmosphere at Triangle Television is one of intense, ordered activity. The phones never stop ringing – and do get answered expeditiously by the gracious Pam – people are coming and going at a rapid rate. Triangle are about to launch a range of genlocks (the device that allows mixing of computer and video signals) for the Amiga which they designed themselves to exacting standards.

Also new is the Hitachi VY25E PAL video colour printer, for which Triangle are offering a bureau service. John is currently adding the final touches to an animation that will be used in muppeteer Jim Henson's new film Monster Maker, David and Peter are promoting a video Triangle has produced called Kit Car Review 1989 (turn your Skoda into a Ferrari). And there are more projects on the drawing-board.

If they continue to successfully expand at this rate, Triangle may have to re-think Euclid or turn to a different form of spatial expression. Maybe we are witnessing the birth of double-helix television. In any event, I wish them well.

Triangle Television. 130 Brookwood Rd, London, SW18 5DD Tel:01-874 3418

Hitachi VY25E PAL colour video printer

NEW in at Triangle Television is the Hitachi Colour Video Printer. This device, which is approximately the size of a VHS video recorder, will produce near-photo quality pictures from RGB or composite video, computers, videotape, video cameras, CCTV units, even endoscopes or microscopes that incorporate video output.

The unit uses a thermal dye transfer process at a resolution of 540 x 620 dots (7 dots/mm). Operation is very simple: Load an ink cartridge and special paper, the frame to be printed is captured on the press of a button in the built-in memory (which is quoted as being of one field capacity – PAL frames are composed of two fields, one for each scan of the frame in interlace display).

The VY25E then scans the captured field three times extracting red, green and blue and prints the appropriate complementary values to produce an image comprised of cyan, magenta and yellow. Paper feed is automatic and although the print size is small – 100 x 128 mm – the image is quite clear and it is possible to print four different images as one frame.

Hitachi also makes a transparency medium which requires a different ink cartridge; for the fashion-conscious, an iron-on paper for which the printer will reverse the output so the image is the right way round and also an adhesive backed paper for stickers.

Prints cost about 60p each for the paper and ink, taking about 1.5 minutes a print. But before you rush down to the shops, check your Amex statement; the VY25E has costs £1,500. For the less affluent, Triangle Television are offering a bureau service and will make prints from computer art or videos. The unit was so new they hadn't had time to work out how much they will charge.



Sample output



Fantavision

Attractively boxed with an excellent manual, Fantavision follows the familiar Amiga layout, with pull-down menus and four windows containing at top left, the drawing, shape and manipulation tools (flips, rotates, zooms and squashes).

Below it is the customisable palette, animation mode selection window and top right, the animation control window where frame rates, loops and other like functions are set.

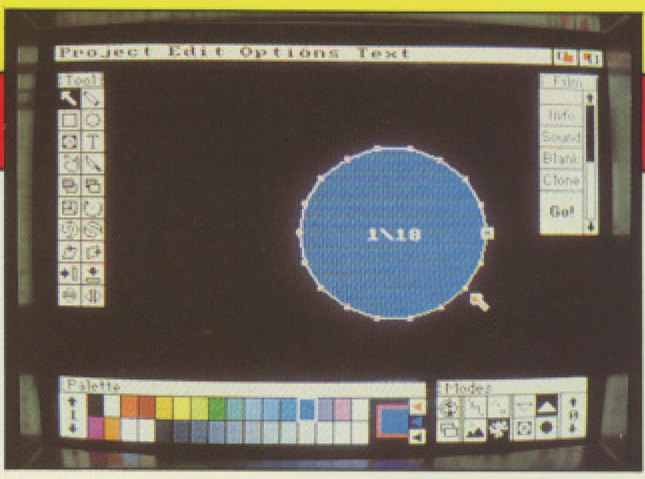
Windows can be moved but not resized. A preference file controls their start-up position and many other system defaults which can be customised from the Workbench.

Fantavision works in eight different screen resolutions with six colour tables from two colours to HAM's 4,096. But in use, Fantavision has some limitations that affect the colour choices of animated objects severely.

This is a real-time system; the computer does all the calculation for each successive frame as you watch it, because the object, in computing terms, changes very little and the Amiga's custom chips can handle the processing easily.

Fantavision does do something very clever with objects. Not only does it plot and animate changes in position of objects from one frame to the next, it will transform one object into another in real-time, transforming the colour as well if necessary. This process is the core of the system.

An object is a series of points which can be grabbed and moved to stretch or change the shape. Points can be added or deleted and the object always displays it's unique object number and how many points it has. The catch about the available colours is that these objects can only have one colour plus a border, although different objects can be joined together.



My first object. The first number indicates the object reference number, the second is the number of points in the object

Any IFF graphic file can be loaded as an object or a background but can only be moved around the x and y axis. Bit mapped objects cannot be transformed into other objects of any kind. Conventional animation using a sequence of imported graphics, one for each frame, is possible although time-consuming. This limits the kind of animation you can do to certain styles, but the compensation is more than adequate.

Fantavision is very quick to use, since the transformation process calculates all the frames – up to 127 – between key frames, which are the ones you create. So it's possible to make a minute-long animation from 11 frames.

There are several nice fonts and a selection of styles that can be used for titling and captions. Text can be animated but only like bitmap objects. Fantavision will not rotate or flip text properly, but will scroll it around.

Broderbund have provided a selection of sound samples to be synchronised with an animation, mixed for volume and pitch and changed during replay. You can use any standard file format samples in Fantavision, but the text fonts appear to be uneditable.

Several demos on the disc show it to be more than capable of producing amusing, atmospheric or even dramatic animations.

REPORT CARD

Fantavision
Broderbund
£39.99

USEFULNESS ....
Although the styles of animation are limited, many pleasing forms of animation are possible and the inclusion of text and sound adds to the quality of the final result.

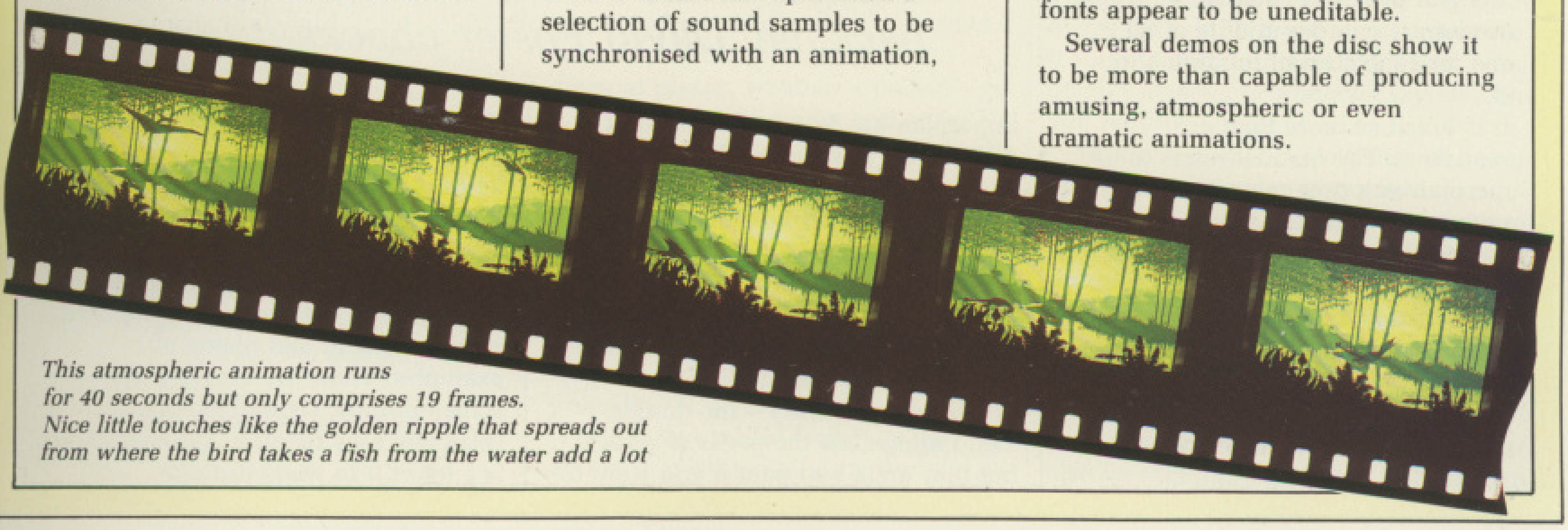
EASE OF USE ....
Will suit the first time user but offers facilities to please the more demanding.

INTUITION ....
Will not multitask or return to Workbench except by a reset.

SPEED ....
Fast. If working with simple objects you can get results very quickly. More complex shapes take time.

VALUE ....
Powerful, well designed and documented. Worth investing the money if you want to get into computer animation inexpensively.

OVERALL 72%
A simple to use yet powerful program which will appeal more to the enthusiastic home video owner.


This atmospheric animation runs for 40 seconds but only comprises 19 frames. Nice little touches like the golden ripple that spreads out from where the bird takes a fish from the water add a lot

A flexible friend



Completing the classic database, spreadsheet and business graphics triangle is the role of Precison's latest package. David Foster checks it out

SUPERPLAN is Precision Software's spreadsheet. It has to be unusual, if only because it is one of the few programs without an upper case character in the middle of its name, or an exclamation mark at the end.

It is billed as more than a spreadsheet: The manual refers to Superplan as a time management program and database with business graphics. The claims are justifiable. Superplan is a development of Logistix from Grafox, a program Precision liked so much...

Logistix was originally available for the PC and then converted to the Amiga, so it is not an entirely new product. The transformation to Superplan has largely consisted of Amigaising it. In spite of this, in many ways it still has the feel of a PC.

I knew it would be there. Hiding below the attractive packaging, lurking below the program and example files on two discs, masked by a quick reference card and a 330 page ring bound manual was Precision's speciality – the dongle. Yes, I appreciate the perils of piracy, but they are a real pain if you want to multi-task; and they all look the same.

The first 30 pages of the manual are an introduction to the program and a tutorial using a supplied example spreadsheet. This is followed by sections covering the main aspects of the program, detailed descriptions of each command and plenty of examples. There are also lots of screen dumps. Overall, the manual is relatively easy reading, although there is a lot of it to wade through.



Unfortunately, the tutorial section has some errors which cause the examples not to work correctly. This, coupled with the tutorial file not being set up correctly for the examples, will be confusing for anyone new to spreadsheets. I understand from Precision that these problems will be sorted out.

In spite of this, it is worth going through the tutorial to get a general idea of how to use Superplan, even though anyone used to spreadsheets will have little trouble sorting out the basic functions from the quick reference card.

Several other files are included on ►

THE SPREADSHEET

WITHIN the spreadsheet the standard letters across the top and numbers down the side approach is used. The theoretical maximum size of sheet is 1,024 columns by 2,048 rows, given sufficient memory. I had about 270k of memory available for data once the program had loaded.

In the lower part of the screen are a number of lines, starting with a status line giving details of the current data file, the amount of memory still available and the time – assuming you set it before loading Superplan.

The two lines below the status line give details of the available options at all times, as well as the currently selected command and the line beneath is used to enter text, numbers and so on.

Beneath these are a number of small icons covering some of the most frequently used commands.

Some commands are available from the pull down menus, but the main method of selecting an operation is either by clicking in the lower area and selecting a row of letters, or by pressing the forward slash / and the required letter.

The screen can be split into two, either horizontally or vertically, to show two different parts of the same spreadsheet.

DATA is entered in the lower part of the screen and only transferred to the spreadsheet when confirmed with Return, or by clicking on OK. Different types of entry are prefixed by punctuation marks to denote the type of data.

Formats can be specified for the way in which data will be displayed, such as justification, number of decimal places, whether a pound sign will precede the amount and so on. This can be applied to individual cells or ranges of cells.

All the usual mathematical expressions are provided for creating calculation formulae, as well as a large number of built-in functions from the date to special ones for use with the database aspect of the program.

One rather useful feature is the ability to conditionally display text as a result of a calculation. You could, for example, display *Account overdue*, or *Nothing outstanding* depending on whether the value in the specified cell was negative or positive.

Formulae may be copied from cell to cell, or created to cover a range of cells. By default, all replication and copying of formulae is relative – it does not refer to a specific cell or cells, but to cells a set number of places away.

THE facility is provided for making references absolute by the names case sensitive. Once this option has been selected any reference in upper case is treated as being absolute, whereas lower case coordinates are relative.

Blocks or ranges of cells to be worked on can either be specified by clicking at one corner with the mouse and dragging over the cells to be included, or as entries on the command line, by moving the cursor, which constantly updates the entry on the command line.

Names can be attached to cells or blocks of cells, making it much easier for reference at a later stage.

Superplan does not automatically recalculate the sheet every time something is altered and you have to select a command to update the spreadsheet when required.

Spreadsheets have often been used for simple database applications, with all the fields of a record occupying a single row, but Superplan takes this a bit further by providing specific database commands to search and query data. With a little use of macros it is quite easy to create input and display screens in whatever layout you require.

Import and export facilities are provided. Superplan is capable of reading Lotus 1-2-3 files, converting commands and expressions in the process, where possible, or entering them as text if no comparable command is available. Similarly, dBase files, DIF format, Ascii, Comma Delimited and Logistix files may also be read without trouble. Data may also be saved in the same formats.

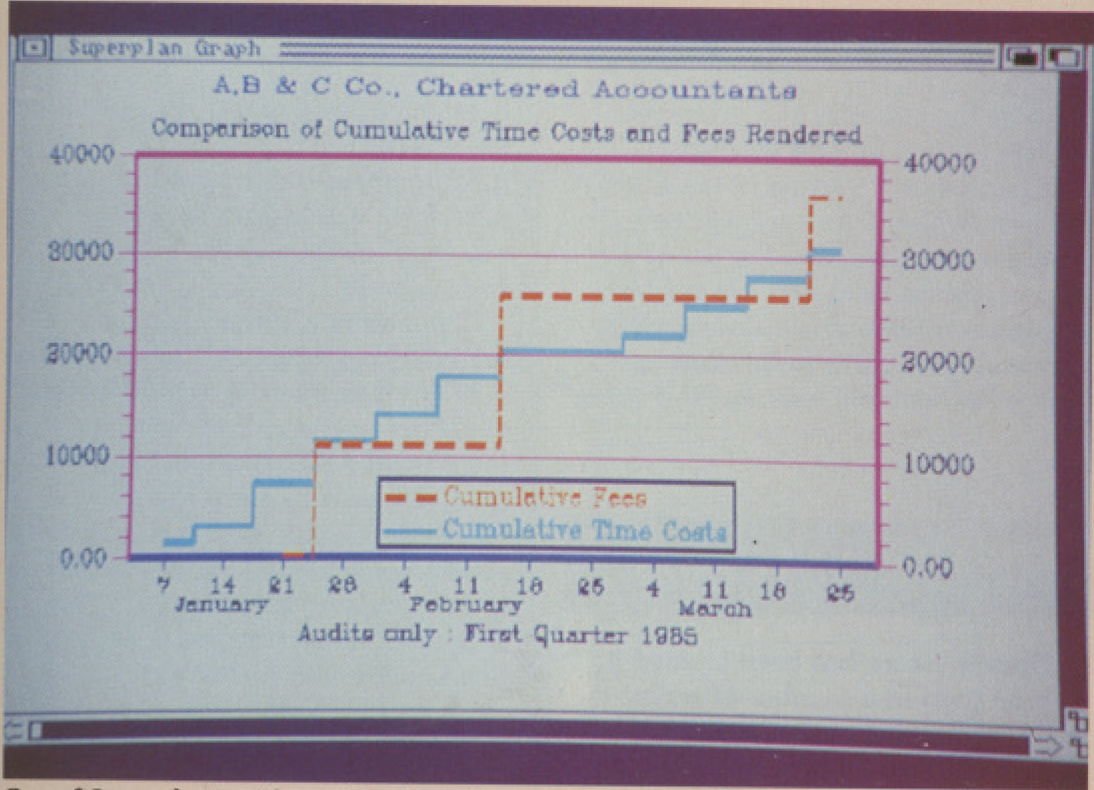
the examples disc and described in a later chapter. It is well worth studying them, both to get an idea of what can be done and as examples of the power of the auto and macro commands.

Context sensitive help is available by pressing F1. It is fairly comprehensive, although somewhat slow, as it's read from disc. Why do so many Amiga programs ignore the key marked Help and assign it to another key? More to the point, why do so many of them spew garbage on to the screen when the Help key is pressed? Superplan is not alone in this – even the Commodore supplied ED does the same.

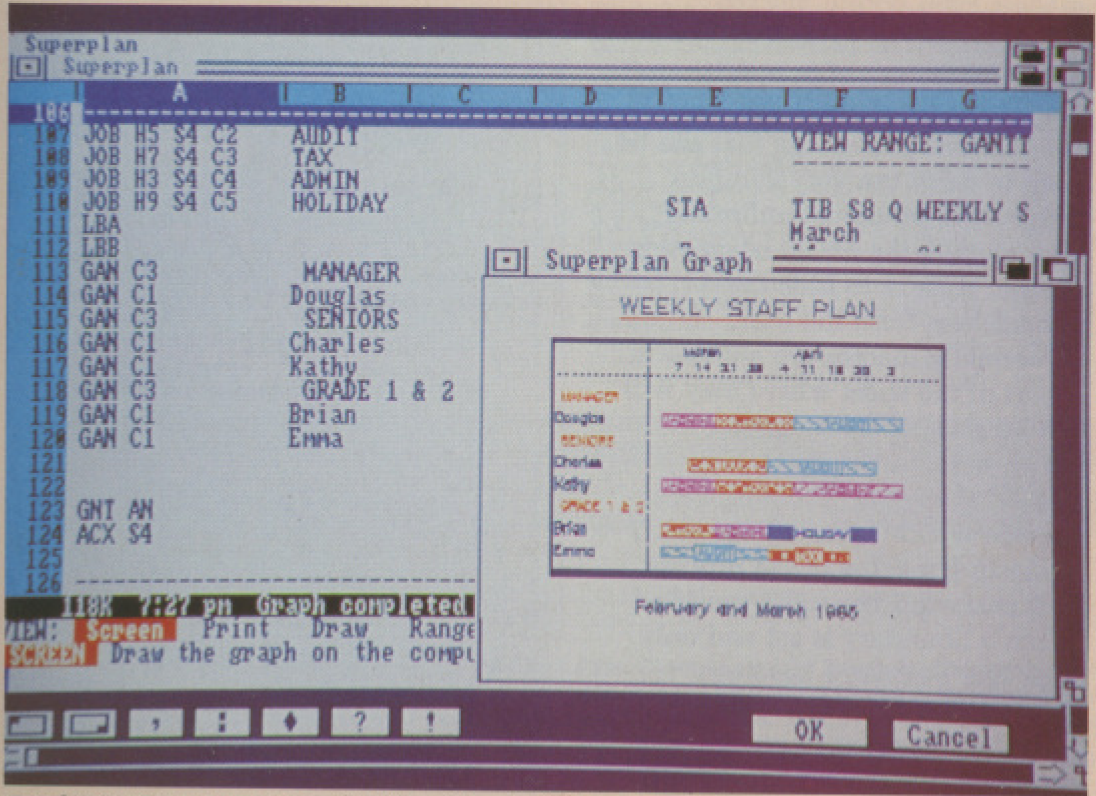
Superplan may be run from Workbench or the CLI, but if the latter is used, the stack needs to be set to 13000. The program requires a minimum of one megabyte of memory. I used an Amiga 500 with 512k of extra memory and two floppy drives. Installation consists of simply making copies of the discs, although more detailed instructions are provided for hard disc installation.

Graphical display of data is a feature of Superplan. Graphics may be displayed in a window and the resulting graph sized according to fit the window. A wide range of graphs and charts, from pie charts to clustered and stacked bar charts, line graphs, step graphs and Gantt charts (a time management chart popular in the building trade), amongst others, can be displayed. It is also possible to annotate, title and provide legends describing the meaning of the different shades.

COMMODORE is trying to promote ARexx and this is a late addition to the program – it is only mentioned in the Readme.Doc file – permitting commands to be passed between different applications using ARexx. The latest versions of the Superbase Professional Database also possess ARexx capabilities, opening the way to manipulating and



One of Superplan's wide variety of graphs



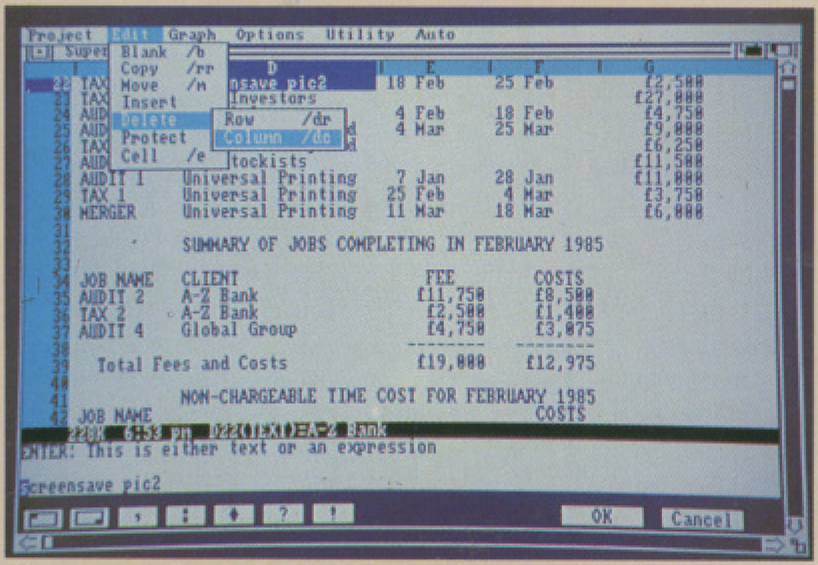
Graphs can be shown alongside the relevant stats

SCHEDULING

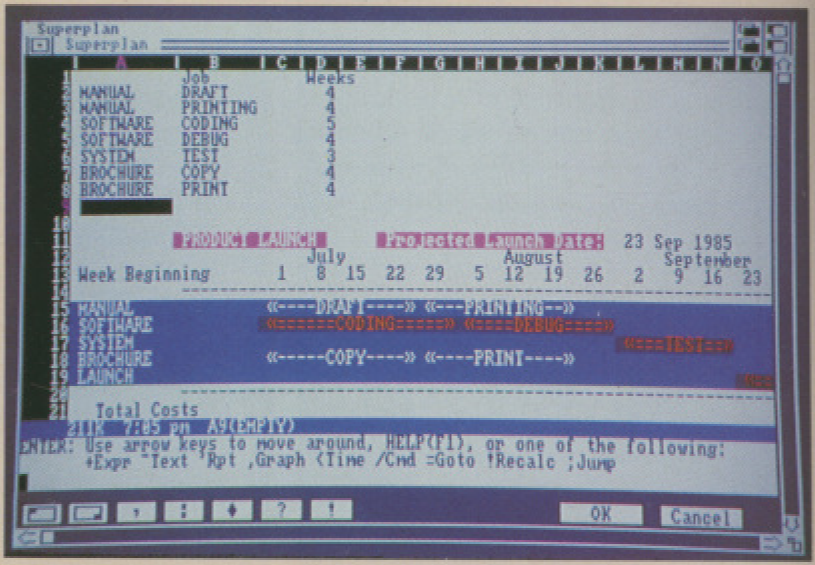
Project scheduling and time management facilities offered by Superplan are a slightly unusual but useful feature. You can create a calendar, which in turn forms a timesheet within a spreadsheet, based on anything from minutes to years.

It is then possible to display the various items from the main spreadsheet as a horizontal chart, with all items marked with their start, end and what they are. Conditions about which items may overlap others, or which cannot start until another has been completed, can be imposed.

Taking this a stage further, a critical path analysis may be carried out which highlights those items relevant to the critical path and indicates those where the time scale is not critical. If set up correctly, altering the duration of an item in the main spreadsheet will, once re-calculated, reflect the changes in the chart.



There are windows for new users and short cuts for the experienced



The Gantt chart is ideal for production schedules

◄

importing Superplan data from within Superbase.

An example ARexx file provides a demonstration by passing the necessary commands to Superplan to create a graph, display it in the graph window, re-size it and obtain and display the contents of a given cell before tidying up and leaving.

Apart from the errors in the tutorial section, which I am sure will be corrected quickly, and the use of F1 instead of the Help key, my biggest criticism is the omission of shortcut keystrokes to move to the start and end of a sheet, the only method being to click on the icons at the bottom of the screen.

An increase in the speed of screen refreshing would also be welcome, as you tend to move around a lot in spreadsheets.

If you want a spreadsheet with all the bells and whistles, then Superplan certainly has them. It is fully featured and extremely powerful with its macro and ARexx options. It is relatively easy to learn to use, although it would take a considerable amount of time and experimentation to fully explore its potential. I shall certainly continue to use it and experiment with its features.

HIGH SPEED WITH AUTOS & MACROS

SUPERPLAN provides both autos and macros. These are similar, in that they provide a means of linking sequences of keystrokes so that they may be played back at any time by a single keystroke. The main differences are that autos are only allowed to be up to 254 characters long and are not stored as a part of the spreadsheet.

An auto is created by specifying a hot key to be used to replay it, then entering it at the command line. Special commands are available to insert cursor movement, Return and other keystrokes into the Auto.

Macros occupy cells in the spreadsheet and may be any size. They are more powerful, as they permit the use of extra commands. They may be created in one of two ways – either type the contents into the cell as you would enter normal text, or use the learn mode, where anything you type is recorded and put into the sheet at a specified position.

Once a macro has been created it can be used in a number of ways. You can use it from an auto key by specifying the cell at which the macro starts, or you can call macros from within macros.

Macros are an extremely powerful feature of Superplan and amount to a complete programming language that can be used to carry out very complex procedures of almost unlimited size, even to the extent of creating custom screens to hide the spreadsheet from the user.

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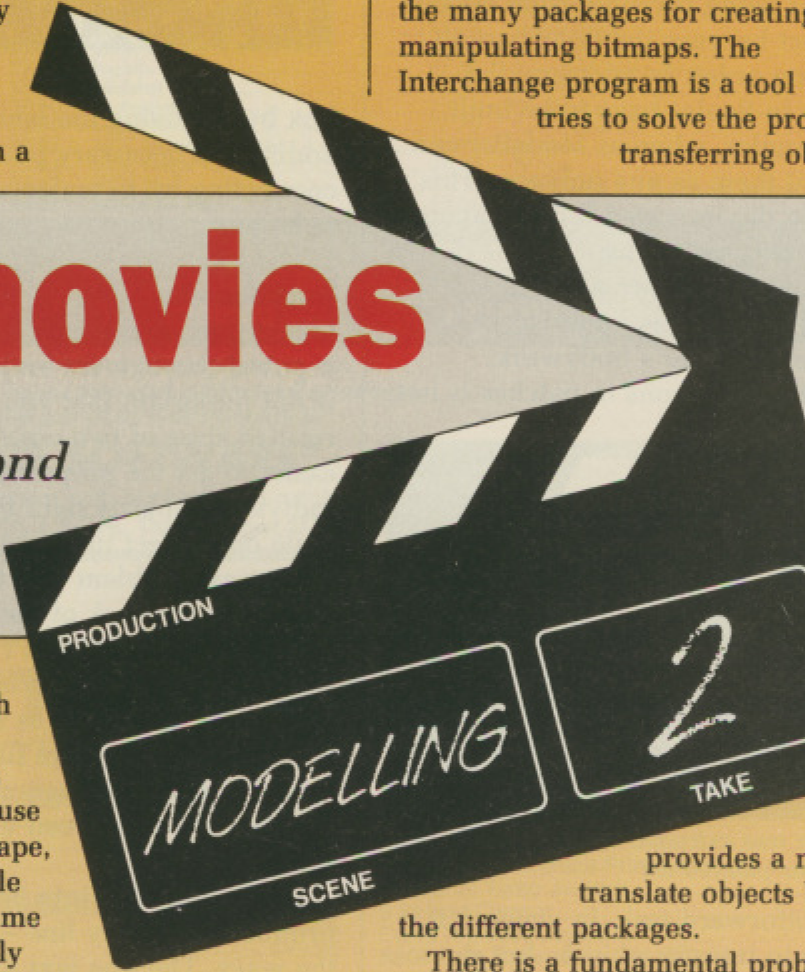
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Making movies

Sam Littlewood takes the second step towards producing an Amiga animation



MODELLING has nothing to do with splattering the Humbrol on an Airfix creation. It doesn't even involve taking all your clothes off, although you can if you like, and if you are as good at Teenage Queen as I am, your Amiga is probably used to your sitting naked in the front room.

Computer graphics bods think of modelling as the stage between storyboarding and animation. Last month we looked at the steps involved in making a movie. The first step, covered in that article, was the creation of the story and its associated storyboard. This did not involve the computer, only the brain and a pen.

The focus now moves onto the aspects that use the computer. The first of these is the modelling – creation of the objects that will go to make up the animation.

The outlined story was a comment on the content of speeches made during elections. The objects that will be needed are:

- An auditorium in which the speech takes place. This includes the walls, a stage, and an audience.
- A speaker and podium. The speaker will have various parts of his body animated in some semblance of oratorial style.
- A large bull, to be placed backstage, along with a suitable connection to the speaker on the other side of the curtain.

The style of modelling used will be cartoon-like. A realistic image would have looked better, but would have taken longer and been difficult to fit into a 1 meg Amiga. The story still works with simple objects – any extra detail possible with more processing power is only icing on the cake.

The models can be designed with one of the several tools available for the Amiga, for example Sculpt-3D, Modeller-3D or 3-Demon. This is only for the modelling. The animation and rendering might be carried out using one or more different programs. Exchanging data between different packages is often awkward because some of the tools only have a limited facility for reading each other's data.

Sculpt-3D cannot read data in any other format. A script language can be used to generate objects with home-brewed programs, possibly even programs that interpret other formats of data. If one is feeling in an excessively masochistic mood, this script facililty can be used to enter points from a drawing on a sheet of graph paper.

Modeller is designed for use with Videoscape, so both handle data of the same format, usually referred to as Videoscape-3D format. Modeller can read Sculpt datafiles and data from various Aegis CAD packages, such as Draw-2000. There are two versions of the Videoscape format, compact and readable text. As with Sculpt script files, it is possible use text from your own programs.

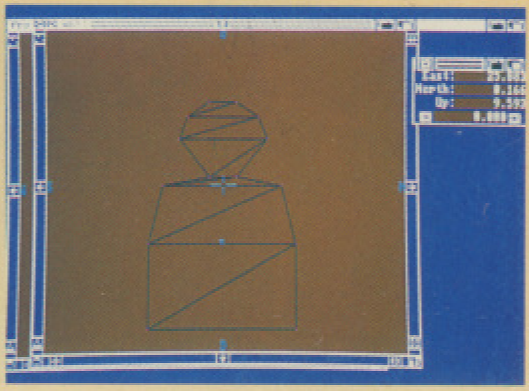
Mimmetic's 3-Demon only provides modelling, having no associated renderer. Designed for use with one of the other renderers, it can read and write data for Sculpt, Videoscape, Forms in Flight v1, which can only use its own data format, and Silver, which can only write its own format but can read Sculpt files as well as its own documented format.

This plethora of tools and associated file formats makes you appreciate the IFF file method used for storing pictures. There are few problems transferring data between the many packages for creating and manipulating bitmaps. The Interchange program is a tool which tries to solve the problem of transferring objects. It provides a means to translate objects between the different packages.

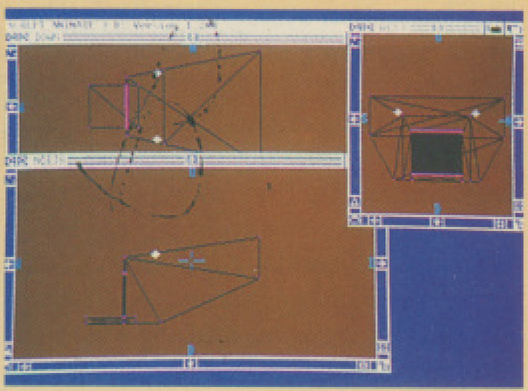
There is a fundamental problem that has precluded any common file format along the lines of IFF. There are many ways of representing 3D objects, each producing something that looks superficially the same.

The method chosen by a package depends on the rendering used, the style of modelling and so on. There is no clear right way to do it. To take a

▶



The shape for each member of the audience is kept as simple as possible



The three windows in Scuplt give an all-round view

particularily annoying example, Sculpt objects are built up from triangular polygons. These polygons are visible from both sides. Modeller uses polygons with two or more vertices, and they are only visible from one side – that from which the vertices appear in a clockwise order.

Transferring objects from Sculpt to Modeller usually results in half the polygons being invisible from outside the object because the points are in the wrong order. In addition, flat surfaces in Sculpt have to be built with triangles, whereas Modeller can represent them as one polygon. This results in the imported object having far too many polygons.

There is more. Forms in Flight v2 uses curved patches reminiscent of the panels of a car's bodywork. Translating polygons to patches is not



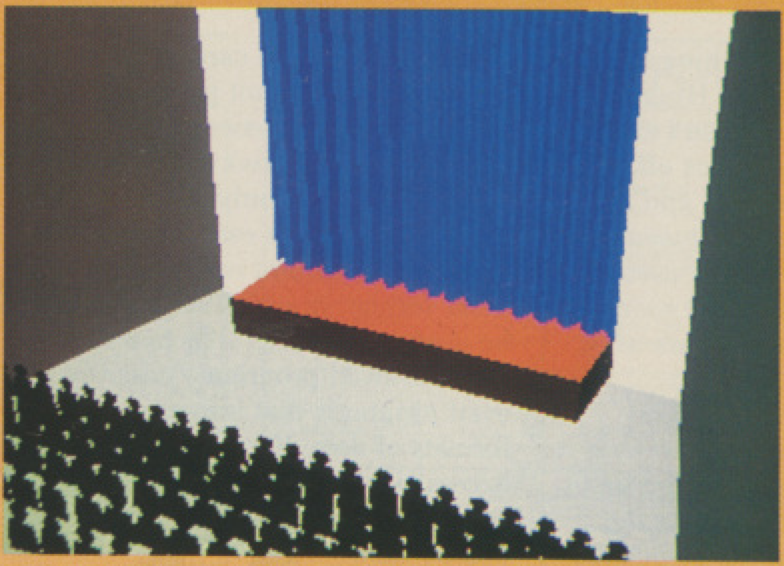
The torso was extruded but the tie was painted on

a straightforward task. In general, it is possible to transfer objects, but it usually requires work to make the imported object useful in the new package.

It paints a rather gloomy picture of the current state of the software, and governs the choices made when I set about producing the example animation. The package used for almost all the modelling was Sculpt-3D. It has a moderately good user interface, and since Sculpt-3D has the best animation system, it reduces the work converting objects from other formats.

The first object was the auditorium and its associated audience. The walls were created by first taking a cube. Extra vertices were added along the sides, and the ends of the cube scaled and dragged to make the sloped area for seating, the roof, and the area around the stage.

The proscenium arch was cut out of the front wall of this strangely-shaped



While there is a lot of detail in this shot most of it was produced automatically

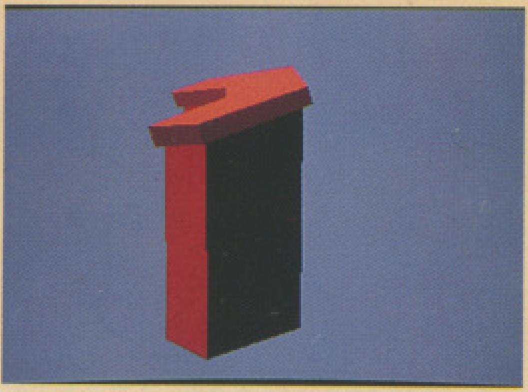
box by removing the whole wall and adding the necessary points, connecting up to make complete polygons.

The stage was simply a cube stretched and scaled to the right proportions and then slotted in so that it poked through the arch. Initially it is not important that you get the relative sizes of two objects right. It is easier to get the proportion of the individual objects right first, and then scale one object up or down in size.

My next problem was to add a curtain at the back of the stage. The packages failed me and I resorted to writing a program to print out the points of a sine wave as numbers with output as a script file for Sculpt. I used C, but the program could equally well have been written in Basic.

When imported into Sculpt this file produced a wiggly line – 16 cycles of the wave. The line was then extruded vertically into a sheet, making the curtain. This was scaled to fit by using the tape-measure in Sculpt to read off the gap for the curtain, and then reattaching the measure to the ends. The curtain could now be scaled to the right size, well away from the clutter around the evolving object.

The audience started out as a



Keeping the lectern simple reduces rendering time

simple silhouette of a head and shoulders with absolutely no detail. This was then duplicated to make a row. The row was rotated to make the audience lean back a bit, and duplicated several times to make a block. The initial person used could have been more complicated, but the audience is never focussed on directly, and there are quite enough polygons already.

The floor of the auditorium is sloped, so after the audience was scaled and moved into the right place it was rotated to match the slope of the floor. In general, it's a good idea to leave rotations to as late as possible, since most of the manipulation tools work best when used parallel to the axes.

THE remainder of the objects were constructed using similar techniques: The head of the speaker started out as a cylinder, distorted and scaled. The nose, eyes and mouth were pasted on later.

The torso of the body started out as a hemisphere, squashed front-to-back, extruded down to the waist, and then again to the edge of the coat. The lapels and tie were applied by hand. The general theme is – take a primitive object, and then cut it around, possibly adding other cut-up primitives around it. Try to avoid making an object point by point. It is very slow work, and not as accurate.

Sitting on a pile of floppies, we have made a collection of unrelated objects. The next article covers the process of sticking them together and describing how they behave over time. This includes the lights and the actual observer. Until then think about how you would go about putting the next stage together.

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Developers deluxe

Mike Cowley meets a top-of-the-tree Amiga think tank

SANDWICHED between a car accessory shop and a double glazing showroom in a north London High Street, seems an unlikely location for an Amiga developer currently rated by Commodore in the States as being among the top five in the world.

But that's where you'll find the boys (and the girls) from Burocare Graphics Design, a company which churns out innovative products for the Commodore machines the way some people shell peas.

The Amiga fittingly takes pride of place in the tranquil surroundings of the modern showrooms fronting the busy Kenton High Street, Harrow, which had formerly housed a TV/hi-fi business. But it's what happens in the sprawling think tank behind the scenes that really gives the company the edge.

For here the most interesting collection of oddball technical types you are ever likely to encounter can be found brainstorming their way to taking the Amiga to even greater heights.

As computer boffins go they are probably not the most motley crew around – but they aren't far off it.

How about a professional bass guitar player who transforms himself into a programming wizard after lunch each day – and even has his belated daily start written into his contract?

OR a bespoke software writer whose real ambition was to raise tarantulas?

Or the head of technical support who was formerly a minicab driver?

Or the executive responsible for dreaming up most of the products who can be found selling a rather nice line in leather jackets on a Sunday market à la Arthur Daley?

It isn't surprising then to learn that the managing director really got into computing when his family gave him what must rate as one of the world's most expensive toys, a minicomputer.

Yet combined they form an array of talent that has collectively produced such technological breakthroughs as:

- The world's first PAL colour frame grabber for the Amiga. Connecting to the computer's parallel port, it takes a PAL composite video signal and digitises images from a video cassette recorder or colour camera.

  It works with resolutions of 640 x 512 (16 colours), 320 x 512 (4,096 colours) and 320 x 256 (4,096 colours). Such is the speed of the device that it can digitise a picture of 320 x 256 resolution in less than three seconds.
- The only UK manufactured external hard discs for the Amiga 500, 1000 and 2000. Available in 20Mb, 40Mb, 60Mb, 80Mb, 155Mb and 300Mb, all come with power supply fan, relevant SCSI interface, software and cables.
- The world's first software driver that enables the Polaroid Palette to be plugged directly into the back of the Amiga, so allowing the computer's graphics to be converted into 35mm colour slides, prints and overhead transparencies.
- A revolutionary A4 flat bed scanner that doubles as a thermal printer and photocopier and developed specifically to work with the Amiga. The software written by the Burocare team allows fast integration of high quality images in the Amiga IFF format.

  It takes only 10 seconds to input a full page of A4 at 200 dots per inch. And parts of a page can be scanned in under software control. The printer uses standard thermal facsimile paper and can produce a hard copy of an A4 page in five seconds.
- A totally new concept in support packages for the Amiga which allows subscribers to buy blocks of units which can be traded in for services ranging from training through telephone support to accidental damage and all risk insurance cover.

Amiga-Care, as it is known, involves buying support units in blocks of 20, with prices starting at ►



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But will you succeed in your efforts to liberate yourself and your fellow slaves to freedom?



Backlash

This really is a game that any arcade fan should have in their collection!

It's a fast action, full screen, solid 3D graphics fast-action game. Bursting with stunning realism, Backlash shows the 16 bit processor stretched to it's limits.

For sheer playability and addictiveness, you should take us up on this special offer – even if it's just for Backlash!



Hell Bent

In 3530 Stellarfleet Captain Drak Hellbent achieved annihilation of Kraellian usurpers throughout Aldonicha.

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20,000 Leagues under the Sea

Excerpt from the Coktel Post, 5th July 1867:

"Monster of the deep strikes again!

"The government has fixed the departure date for the famous vessel the 'Abraham Lincoln', helmed by Mr. Farragut who is going off in search of the deep sea monster.

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£100 a block. Units are then exchanged for services ranging from one unit per problem solved for telephone support up to 80 units per day for consultancy.

And that's all in less than a year, for it's only in the last 12 months that Burocare has turned its attention to the Amiga.

Currently in the pipeline there's a number of projects so secret that even the boys from Burocare aren't prepared to boast about.

What they have done for the Amiga – and are still doing – leaves their rivals drooling. Yet Burocare might never have got into the Amiga market if it hadn't have been for a mistake.



Mark Simkin in the Amiga research centre



Bespoke software writer Graham Smith still dreaming of tarantulas

THE company was busy making a name for itself in the PC market when two Amigas turned up by accident as part of an order. So rather than send them back the technical boys began to put them through their paces.

"The more we played with them, the more excited we got about their potential", said Phil Breindel, the Burocare executive responsible for Amiga innovation. "It's a machine that leaves a real impression on you from the word go. The graphic capabilities are mind blowers".

So while the remainder of the Burocare team concentrated on the PC front, a five-man task force was set up to specialise on the Amiga. "Now we take our ideas through from concept to manufacture here in Harrow".

Mark Simpkin is currently head of technical support for the Amiga operation. He's the former minicab driver.

And he too can't get enough of the Amiga. "It's a joy to work with", he says. "We get a great kick out of making the machine jump through hoops whenever possible. The beauty of it is that it lends itself to so many applications".

When Steve Laitman launched Burocare back in 1980 he was still a student. Today, he's only 27 but The Burocare Group he heads up has a staff of around 20 and a turnover of £1.5 million – and rising fast.

For the first few years the company concentrated on PC systems, then the Amiga loomed on the horizon and what is akin to a love story started.

The reason that Burocare isn't already a household name in the Amiga market stems from the fact that up until a few months ago it had never employed professional sales or marketing people in that area.

"We suddenly woke up to the fact that we were doing all these wonderful things for the Amiga, but apart from the Amiga cogniscenti no one really new about us. It was a little like running a private club.

"Now all that's changed. We've realised that we can still enjoy ourselves on the research and development side – because we do enjoy it – while making sure that people out there know about what we are doing".

TODAY Steve Laitman sees a major business opportunity in the Amiga market both in the UK and overseas. "The machines are now poised to have much greater market penetration both in the UK and abroad", he says.

"It looks as though Commodore has finally got its marketing right – and hopefully this will ensure that it puts inferior machines like the ST firmly in their place.

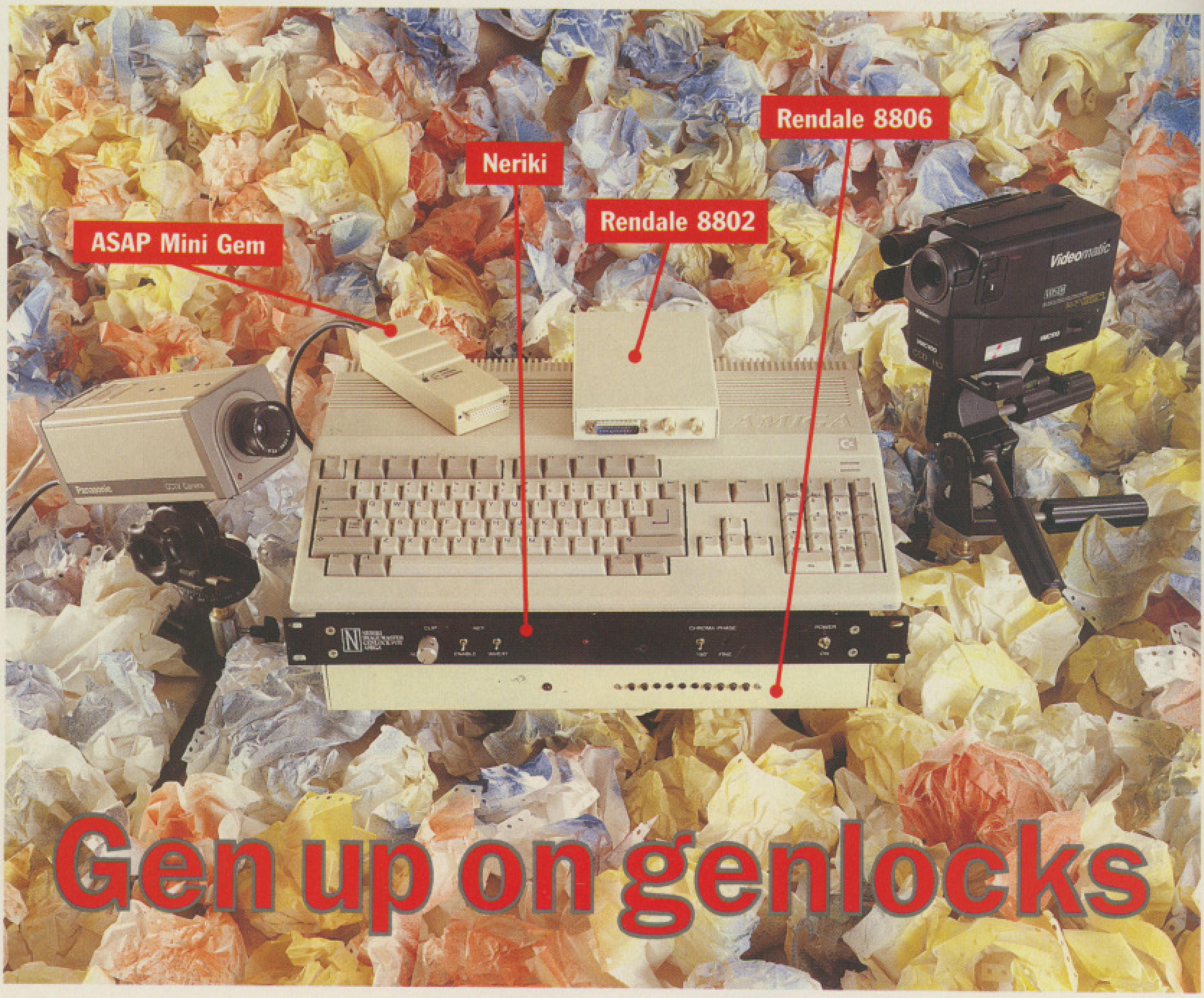
"We confidently expect the Amiga bandwagon to really get rolling over the next few years. And you can be quite sure that Burocare will be well and truly along for the ride".

Not that success will spoil the oddballs at Burocare. Bespoke software writer Graham Smith still nurses the dream of raising tarantulas.

He's had it since he was a schoolboy in the North East and he'd even built a cage to house one.

But when he announced his intentions to his mother, she did a deal with him. No tarantula and she'd buy him a computer. And that's how he became so skilled that he got to Burocare.

"I still sometimes wonder whether I made the right choice", he says wistfully.



Gen up on genlocks

To get graphics from your CBM to the JVC you need to spend between £100 and £1,000. Ron Massey finds out the reasons why

VIDEO technology provides budding Spielbergs with facilities for incorporating effective visual effects at a fraction of the cost of cine film. If you have a video camera or a couple of video recorders and want to mix computer graphics with the recording on a tape then you need a genlock.

Wave a pencil between your eyes and a monitor. You should see a strobe effect which gives several shadowy images of the pencil. It works better if you close one eye. This happens because the screen is flashing 50 times a second.

You don't notice it because it is fast enough to fool the eye and because you have been looking at televisions for so much of your life you have got used to the flicker. In America they use a system which flashes 60 times a second. Some Americans can see the flicker on UK tellies.

This flicker is the frame rate – how often the picture changes. If you want to mix video signals they must all arrive at the tape at exactly the same time. Anything that produces a video signal – VCRs, computers, television cameras and the like – also has to send marker signals for the beginning of each line and the beginning of each picture (frame). These markers have to be very accurate, and are produced by two circuits – the line sync generator and the frame sync generator.

If you want to mix two pictures the lines and frames have to start at exactly the same time, so the sync generators of one picture source have to be locked to the other. Hence genlock.

In a computer such as the Amiga the sync generators are usually derived from the main system clock, which governs everything. It's much easier to change this clock slightly than to try and fiddle with the individual generators, so a genlock will subtly alter the speed of the whole computer in sympathy with the signal coming from your video camera or recorder.

This means the clock in the computer is controlled by the video, so you shouldn't perform speed-critical operations like formatting discs when using a genlock. By

splitting a video signal into its component parts, the genlock takes the video timing signals for line, frame and colour burst and uses these to lock a computer on to an external video source.

To get your video productions running you will need an Amiga, genlock, a video source and a recorder of some kind. Besides inevitable image degradation introduced by copying one tape on to another, you must also consider the type of graphics you are to incorporate.

If you are accustomed to the quality of computer RGB graphics you may be in for something of a disappointment. The bandwidth – a video system parameter governing quality – is typically 14MHz for computer systems, 5MHz for television images and reduced to less than 3MHz by the time a signal is recorded on your VHS VCR. Bandwidth reduction means that image resolution – the ability to distinguish fine detail – is severely reduced.

I have tried to look at all the major players in the genlock market, but it is an area of rapid change. There are at least two new genlocks currently well into their development stages. One, SuperPic from Precision, is due to be released in early spring, and will be marketed as an economical system for building a complete video workstation with built-in video digitising facilities.

Commodore has its own high-end card for the A2000 under development. Called the A2351 Professional Video Adaptor (PVA) this advanced card can take inputs from several sources and offers Top of the Pops type special effects.

While Commodore claims the A2300 cheap genlock is available it could not supply one for review. The long-promised Video Toaster card from NewTek is still in prototype-only form after more than a year's development. I wouldn't be surprised if we never see a European version.

ASAP has suggested that it may be producing two new genlocks in the foreseeable future, one a high performance unit for use with the composite signals put out by domestic video recorders and camcorders and the other a more specialised one for use with interactive video in computer-based training.

The equipment featured in this review was used in conjunction with an Amiga B2000, Philips CM8833 monitor, Sharp VC-D801H digital VCR (as image source) and a Ferguson Videostar VCR (as image destination). A Sony C9 Betamax VCR was also used, as source and destination. Better, and more expensive, equipment produces better combined images.

All four genlocks performed pretty much as expected. The real surprise was the high quality of the Rendale 8802.

Because of price and unit specification, the ones reviewed here fall into three distinct classes. The Neriki and Rendale 8806 are aimed at the professional class of user, the Rendale 8802 has proven to be a popular choice for both amateur and commercial television, while the MiniGen is very much aimed at the home user with a video camera.

The contenders

RENDALE 8802
£289

Powered from the Amiga, the 8802 connects to the computer and video devices which go together to build your video workstation through its four ports: CVBS in and out, 23-way D input to the Amiga's monitor port and 23-way D dual purpose which supplies RGB output signals for a colour monitor and provides access to the unit's mode control.

If you use the 8802 without its mode switching feature the Amiga's background is replaced with the incoming video signal.

The 8802 comes into its own when you use the five modes. Mode 1 is the default. It replaces the Amiga background, selected from a menu, with the incoming video signal.

Mode 2 shows Amiga graphics only which are overlaid on to external sync. This allows you to record scenes from an Amiga. The input can be black and burst, which you would get from a signal which has been through a studio mixing desk and stripped of a lot of the signal's information, or composite video which contains the whole signal.

You can use two monitors with mode 3, one to view video and the other for graphics, with only the video signal going to the output.

The last two modes are designated 4a and 4b. They are foreground modes to create transparent graphic windows over black. Mode 4a uses RGB settings of 0,0,0 to distinguish what should be overlaid while 4b works with any values less than 7 for RG and B.

These graphic windows are known to video buffs as a key. So a colour keyed signal is not one where the bumpers match the rest of the paintwork, it is one where a specified colour on the screen is replaced by a picture from the video.

The price of the 8802 includes two versions of the control software, one for using the Amiga's function keys as control switches, the other for control key switching. To use the 8802's Modes 2 to 4 you will need a cable connecting the 8802 to the Amiga's parallel port for software control or external switching.

RENDALE 8806
£700

Designed to sit under the Amiga 2000, the 8806 is a large, comprehensive system aimed at the professional user. It includes a range of hardware features: Video connections are provided for CVBS in and out, Blanking In, which allows the 8806 to be synchronised to whatever is sending the picture, Key Out, which tells the next device down the line which colour is being used to overlay a picture, and Sync Out so that another box of television tricks can lock into the signal. The 8806 has separate RG and B connections,

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output to the Amiga's monitor and the system control port.

Switches on the front panel provide control for external key select so that another unit can decide what colour the key should be. A mix switch selects which sources are used. Red, green, blue and luminance signals can be selected individually, while foreground and background colour select allow the genlock to decide which colours are used.

Software control can be implemented as with the 8802, by connecting the Amiga's parallel printer port to the Rendale's control port.

MINI GEN
£99.95

Applied System and Peripheral's (ASAP) MiniGen requires only three connections – one phono each for CVBS in and out and a 23-way D connector. Hardware control is limited to a three-way toggle switch for selecting video only, Amiga image only or combined image.

The unit plugs directly into the Amiga RGB video port. It looks pretty much like Commodore's 521 modulator and protrudes from the back of the computer. This is fine for Amiga 500 owners, but is awkward to get at if you have an A2000. ASAP say that it is possible to use a lead to reposition the MiniGen, but the unit should not be extended more than eight inches from the Amiga.

If you are using the MiniGen with Commodore's 1084 monitor, composite video output from MiniGen can be fed to the monitor's composite video input.

MiniGen's manual was a disappointment. The minimal instructions supplied detailed connecting the unit to the Amiga, four paragraphs covering using the MiniGen, using a VCR as input and recording with a very brief outline of technical details.

NERIKI
£1,000

The most expensive and professionally finished genlock, the Neriki Image Master, is designed for mounting on the 19 inch wide racks which are common in the professional video industry. Unlike the other genlocks reviewed here it can be used with a variety of computers.

External connections allow you to use the unit in a wide range of systems. In its simplest configuration the Neriki requires four connections – one each for the Amiga, the Amiga monitor, the source video and the destination video. Unlike the Rendale and MiniGen units, a separate monitor must be used for viewing a combined image.

The key option on all the other genlocks uses one of a set number of colours which can be replaced with the video signal. The Neriki has a continuously variable luminance key which allows you to slide between colours and up and down the brightness levels to find the one you want to mix with. This should allow a fade.

In practice it took a lot of trial and error to produce an acceptable image. Once you have it working the clip/auto control keeps things in check. A key enable option allows the Amiga's

▶

SYSTEM CONTROLS and TERMINALS

	Neriki	8806	8802	MiniGen
Price	1000.00	700.00	289.00	99.95
Size (inches)	19x10x1.75	17x14x2	4.5x7.5x1.25	2.25x6x1.5
Amiga Res	All	All	Med/High	Low/Med
Control				
Software	na	●	●	na
Hardware	●	●	●	●

SPECIFICATION

	Neriki	8806	8802	MiniGen
CVBS in	●	●	●	●
CVBS out	●	●	●	●
RGB/composite mix	●	●	●	
Transparent colour select	●	●		
Foreground/background select		●	●	
Genlock/video display select	●	●	●	●
RGB output connection	●	●	●	
Vid/graph/mix display select	●	●	●	●
Amiga monitor connection	●	●	●	

RATINGS (out of 10)

Parameter	Neriki	8806	8802	MiniGen
Manuals	10	8	8	2
Presentation	10	9	9	9
Ease of use	7	10	10	9
Features				
Hardware	9	10	9	8
Software control	na	10	10	na
Demos/test	8	na	na	10
Performance				
Mix picture quality	8	9	10	9
Red colour bleed	5	8	8	7
Green colour bleed	7	8	8	8
Blue colour bleed	6	7	7	6
RGB res/ghosting	7	8	8	8



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image to be superimposed on the video.

Most professional set-ups consist of rows of video boxes like the Neriki. Something has to come at the end. Unless this is properly terminated the signal will bounce back along the wire and dirty the image. *(What's wrong with dirty videos – Ed).* To counter this the Neriki has a loop/terminate switch which terminates the Genlock In internally or routes the signal through a compensator to clean up the signal then out to the next thousand pound box.

Genlocks are like amplifiers. The more you pay the more spaces you get to plug in more expensive boxes. The Sync out can be used with an external production switcher so that your multi million pound mixing desk can be synced to the Amiga. Since you are rich enough to afford a Neriki it stands to reason that you have a few genlocks, so the Genlock In connector allows another video source to be daisychained to the box. The Key out connector tells the mixing desk what you are using as the overlay colour and the Video Out produces the signal you want, combined CVBS and Amiga image.

The Neriki is not for the faint-hearted or shallow of pocket, but it is every bit the professional's tool.

How a television picture works

Television pictures are made up of three colours, red, green and blue, and brightness. Squeezing that lot down a cable, particularly a two wire video cable, is asking a bit much, so they often get mushed up together. This is called composite video which, because TV types would much rather talk in letters than words, is known as CVBS, standing for Composite Video Blanking and Sync.

Sending the separate colours down separate wires – which is the method your Amiga uses to get a picture on a monitor – is known as RGB, for red, green and blue. If luminance (brightness) is included it is called RGBI.

As the pictures get squeezed out of the wire into the monitor they are squirted at the screen a dot at a time, building up a picture from from left to right and top to bottom.

Tricks played by the eye and a glowing effect caused by the phosphor on the inside of a television tube mean that you see a whole picture and not just a flying dot.

When the picture is complete the screen is blanked and the dot starts again from the top. This blanking is sometimes called black burst. It is often used to synchronise signals for genlocking.

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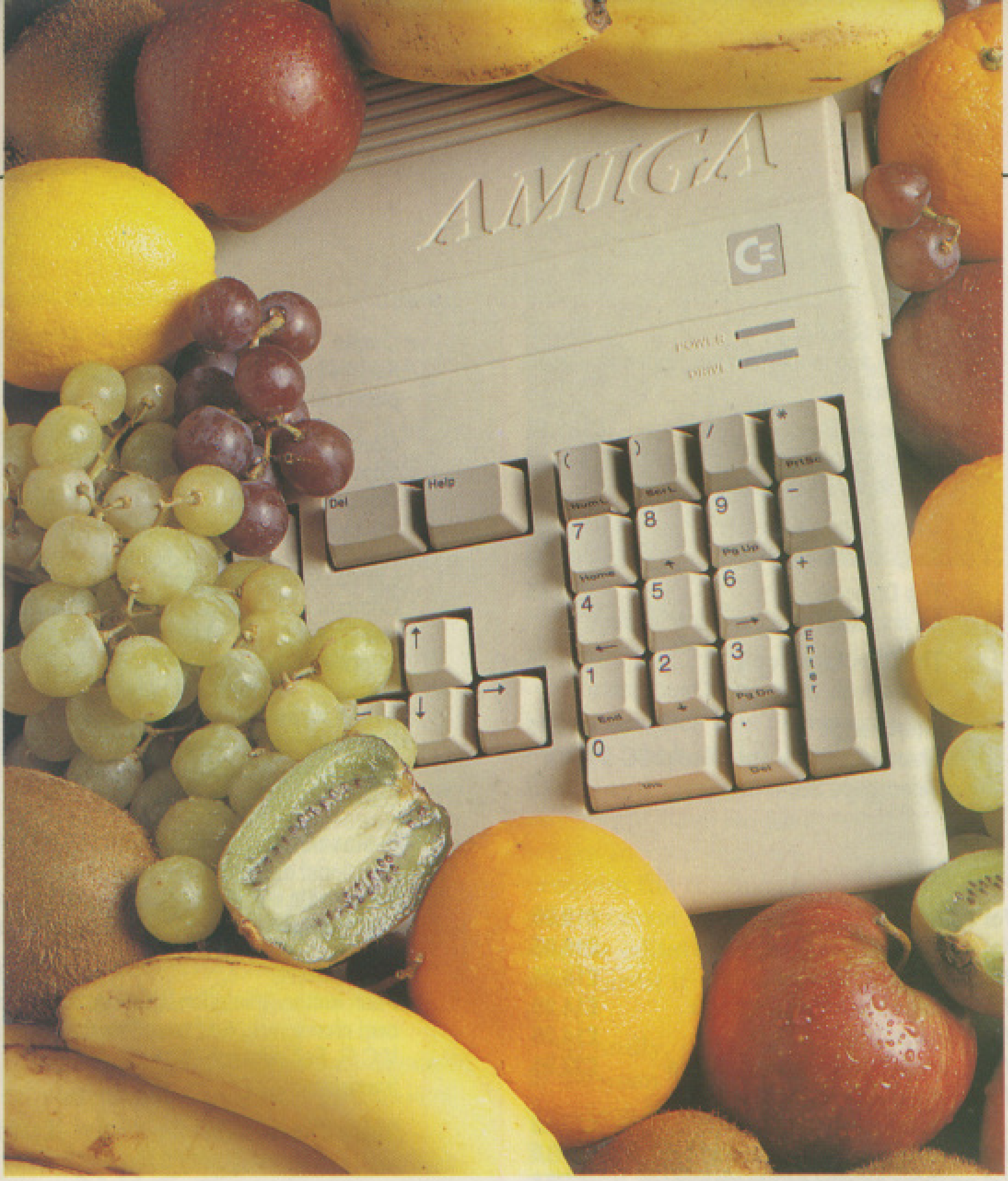
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Delving into the library

Rupert Goodwins examines labels and other features which make your program easier to follow

TRAGIC news. Since last month, there's been a global shortage of kumquats, so all future example programs will use plantains – a species of giant banana – for reference.

Last month's example may well be the last to use the original plum-sized exotic fruit with its sweet rind and acid flesh. But it won't be the last to feature several important components of assembly language programming.

The software inside the Amiga – everything in the rom that controls discs, screens, sound and so on – is arranged as a set of libraries. A library is a set of machine code programs called routines, arranged in a way which gives another programmer – you and me – easy access.

All the details of the subroutines are published and guaranteed not to change between different machines, so your Amiga 500 grown program will work with an A2000 or whatever interesting machines are sitting on Commodore's test bench at the moment. But only if you use the published details. These can be typed in from one of the reference manuals, but nobody does this because everything's in include files, so called because they are used to include information in your programs.

So

```
INCLUDE include_filename
```

lets you use names instead of numbers to refer to routines. Instead of having to look up the address for the library routine and typing it in, the include file will have the address and call it something sensible.

Commodore supplies a set of include files to developers, which might or might not be supplied with your assembler. In general, assemblers that you pay money for come with those include files, whereas free or public domain programs leave you to find your own. There are PD versions of the include files.

Commands like INCLUDE, by the way, are called directives because they direct the assembler to do something a little special. That's the official reason – it's more likely to be because assembly people like a lot of jargon.

THE names they use are standard – things like OpenLibrary, used to get the system to search for a library of that name within the library list – and correspond to names in the Rom Kernal Reference Manual. You can make your own from a manual, and in any case it's good programming practice to have your own standards set up in an include file.

If you want the maximum number of plantains to be 50, for example, then set a name MaxNumPlantains to 50 in an include file and always use the name instead of the number in your programs. That way your programs are more readable – MOVEQ #MaxNumPlantains, D4 makes more sense than MOVEQ #50, D4 – and if in the future you want to change from 50 to 100 you only have to edit the one file and reassemble.

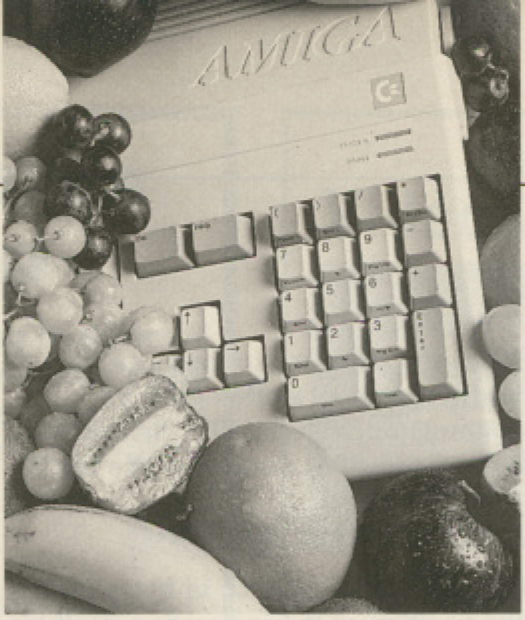
Numbers are assigned to names by the use of equates. So, to maximise your bananas:

```
MaxNumPlantains EQU 50
```

does much the same as the Basic line:

```
LET MaxNumPlantains = 50
```

Once assigned, however, the value ►



can't be changed by a new equate in the same program.

There's another way of giving a number a name, and that's by declaring a label. "A label!" I hear the world declare... labels, in 68000 as in life, are bits of text that describe the thing they're attached to. In the case of assembly language, they have a more specialised function – they signal a point in the program.

So in the demo program the word START at the beginning is given the address in memory of the start of the program. Later on there's a label called QUIT_FAST. This is where the program finishes, and the name is used earlier. The line:

```
BEQ quit_fast
```

is for "if something happened, then go to the label quit–fast and continue from there".

The way labels are defined depends on your assembler, but if you have a word which starts at the first character of a line then it's a label. A common alternative is to finish a label with a colon(:).

Labels are no good if you can't use them, and the BEQ instruction above is only one of many, sugar-free ways. BEQ is short for Branch if EQual, and makes the processor ignore the following instructions and branch off to a new address if the last thing it did produced an equal result. There are scads of these – they're called conditional branches and include BGE – Branch if Greater or Equal, BMI – Branch if Minus and so on.

There's also an unconditional branch that always happens – BRA, for Branch Always, and one that's like the Basic GOSUB command in that it makes the processor remember where it was when it took the branch and, later, return and carry on. That's Branch to Subroutine, or BSR, usually known as a call in programmer's jargon. At the end of the call, the original code is returned to by an RTS – Return from Subroutine instruction.

All the branch instructions can either be to an address within 128 bytes of the place in memory of the instruction itself, or one within 32k bytes. The assembler will work that out for you and generate the right magic; there are no special .B or .W additions to worry about. One instruction fits all.

There's no technical reason why numbers can't be put after branch instructions instead of labels, like:

```
BRA 32421
```

but in practice this never happens. Firstly, labels make locations easier to find – and remember, you might have no idea where in your massive program the routine to skin a carrot is, but you can always ask the editor to search for the text skin_carrot if you've got that label there.

Secondly, if you add program code in between a branch instruction and the place to which it goes, the label will have its value automatically adjusted by the assembler. Try and put the numbers in by hand and you have to work out how much further away the call is. Yech.

FOR the conditional branches, the processor remembers what the last result was like in its condition codes. These are part of a special status register that controls the operation; if a mathematical instruction has a negative result the negative condition code is set in the status register. Subsequent instructions can look at that code and act on what they find.

For example:

```
        moveq   #kiwiprice,d5
        moveq   #squashprice,d6
        cmp.b   d5,d6
        bgt     squashes_cost_more
        blt     squashes_cost_less
cost_the_same
```

puts the price of kiwifruit into d5 and that of squashes – a family of plants related to pumpkins – into d6. CMP is a new instruction, it makes the processor compare one thing against another – in this case, the bottom byte of D6 against that of D5 – and set condition codes accordingly.

So BGT branches to the mythical label squashes_cost_more if D6 was greater than D5, BLT to squashes_cost_less if it was less, and if neither of those two conditions are met the two fruit cost the same. Biological note: Although pumpkins and squashes are commonly called vegetables, they are in fact fruit.

ADD and SUB also generate condition codes, so it would be possible to use a SUB instead of the CMP, and then to print out the precise difference between the two, together with the appropriate message.

Messages, along with any other data that's needed for a program, is assembled using the DC command. That's short for Data Constant, since the assembler assumes, usually correctly, that data doesn't change. It gets used like this...

```
frog_count   dc.w 44312        ; a lot of frogs
shoesizes    dc.b 7,8,9,10,11
morestring   dc.b 'Squashes cost more than kiwifruit',10
```

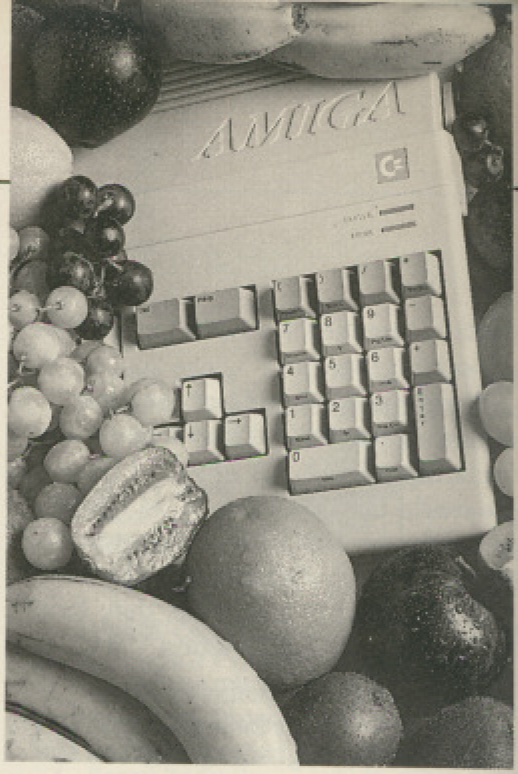
The first word is a label which has the address of the first, or only, byte in the data that follows. It's not strictly necessary and you can assemble data without a label, but it's a little difficult to find afterwards. Likewise, a comment can be added if need be. If a number of data items is given, each gets assembled in order, and most assemblers allow text to be defined as a series of data bytes as in the last example.

If you just want an area of memory reserved for later use and you don't care what's in it when the program starts, you need the DS – Define Storage – directive. This makes room for so many bytes, words or long words, as in:

```
big_buffer DS.L 1000
```

which would allocate an area of memory big enough for 1,000 longwords, or 4,000 bytes. The memory isn't affected in any way, unlike with the DC directive, so if you want it empty and all set to zero, you have to have some program code to do it.

Popping back to labels for a moment. One of the wonders of the Amiga is that it can multitask, allowing a program to be loaded and run while other programs are still in memory and churning away. For this to work, the programs shouldn't care where in memory they get loaded. If they did, and two programs insisted on working at the same address, there would be tears and no multitasking. In the Amiga world, it seems that games software ignores all the rules ▶



◄ and applications software is written by the good guys.

So code has to be what's called position-independent. It's very easy to write position-independent code on the Amiga, in fact you have to go out of your way to pin it down to a specific address. This does mean that you can't know where your labels are going to be in absolute terms, only relative to your current position.

It's like being told by a local that the house you're trying to find is half a mile down the road, instead of learning that it's at 45° 12' 33" North, 0° 0' 43" West.

BUT how do you know your current position in memory? The processor knows, as it has, after all, to fetch the instruction from your current position in order to work out what to do next. Inside the processor is a special register that constantly points to the current memory address, called the program counter or PC.

Generally programmers don't write values to the program counter. Instructions like BRA change the register's value, but to the program writer it just seems as if the processor has started executing from a different point in memory.

However there are many occasions when the program counter can be useful if read. It's often used in conjunction with the LEA instruction – Load Effective Address – like this:

```
LEA pineapple(pc),a0
```

This takes the distance in bytes from the position of the instruction itself to the label called pineapple, adds it to the current value of the program counter – which is, of course, the position of the instruction – and puts the resultant number into A0. Register A0 now points to the location in memory which pineapple labels, ready for the programmer to do with it as he or she wishes.

LEA isn't anything special; the same trick of using PC relative addressing can be used with MOVE, ADD and the rest of the gang.

There's a pseudo-program counter in many assemblers which lets you calculate the length of an area of memory when you assemble it. Consider Figure I below. The * in the second line is shorthand for "the current position in memory".

Subtract the position in memory marked by the label big_melon from it, and you get the size of the string. It's exactly the same as that shown in Figure II but it saves the extra label.

● *Next month: Will the world-wide kumquat shortage ease, or will there be a run on figs?*

```
big_melon     dc.b 'This is an exceptionally big cantaloupe melon'
melon_size    equ *-big_melon
```

Figure I

```
big_melon     dc.b 'This is an exceptionally big cantaloupe melon'
end_of_melon  melon_size equ  end_of_melon-big_melon
```

Figure II

The Program

```
; this line only needed for Devpac

        opt  l-,c+,d+

; this tells the computer where to find some common information

        incdir ":include/"
        include exec/exec_lib.i
        include libraries/dos_lib.i
        include libraries/dos.i

; program starts here

start   move.l #dosname,a1
        moveq  #0,d0
        CALLEXEC OpenLibrary
        tst.l  d0
        beq    quit_fast

        move.l d0,_DOSBase

        CALLDOS Output

        move.l d0,d4
        move.l d4,d1
        move.l #string,d2          get start of string
        moveq  #stringlen,d3       get length of string
        moveq  #3,d4               get number of kumquats
        move.l #fruit,a2           get position of kumquat count

; Kumquat fiddling starts here

        moveq  #2,d5
        mulu   d5,d4

; No more kumquats

        CALLDOS Write

        move.l _Dosbase,al
        CALLEXEC Closelibrary

quit_fast
        rst

_DOSBase  dc.l 0

string    dc.b 'Hello, World. You have'
fruit     dc.b '0 kumquats',10
stringlen equ *-string

dosname   DOSNAME

          even
```

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First in the frame

Phil South gets in a spin over an animation package that delivers the goods

ZOETROPES were the first moving picture devices. Mass produced as childrens' toys during the explosive Victorian age of invention, they presented to the viewer a series of pictures mounted on the inner surface of a cylinder which, when rotated and looked at through a slit, gave the impression of continuous movement. In recognition of the granddaddy of animation hardware, Antic Software has given its animation software the same name.

Antic in America calls itself The Atari Resource. The company is staunch Atari. If you have an Atari and want a piece of software, Antic will have something to fit the bill. So when Antic came across to the Amiga there were whoops of joy from the Californian in-crowd.

Zoetrope is an animation package. Although limited to low resolution, you can draw your frames in any colours you like using the built-in art program, or you can load graphics in from any lo-res art package. But watch out for screen sizes – Zoetrope is only NTSC, no overscan even.

The frames of your animation, which can be whole screens if you like, are compressed into a format called Rif. It's a bit like the Anim standard Amiga format for animation, where only the changes in each frame are stored, and saves wasting memory. The Rif format is also used in the Live! digitising package, , allowing animated samples from that program to be used in Zoetrope.

The facilities for pushing your graphics around are quite advanced. At the bottom of the screen is a VCR-type row of buttons. Clicking these advances, plays or increments the animation in single frames.

This is a handy feature, especially when drawing directly into the frames, because you can pageflip back and forth to check out the registration of the last frame, making sure only those graphics that are supposed to move are moving.

There is a "blueing" feature too, whereby you display a copy of the last frame on to the next one – like a blue photocopy – making precise drawing possible. Although the brush points are sometimes a little sluggish, you can draw some very accurate lines.

However, as good as the Zoetrope graphics editor is, if I was doing some serious animation work I'd feel more at home drawing key positions in DPaint and porting them in. Having ▶



◄ made your frames, by whichever means, you can then treat them with a variety of special effects. For instance, you can defocus and anti-alias them, two effects which lessen the jagged effects of some of the Zoetrope rotational effects.

As well as rotating chosen graphics in two dimensions, you can rotate in 3D as well. The effect is something like Quantel, only with a still picture in order to have a reasonably sized moving picture you would need about 8Mb. You can also resize the graphics, spin them and colour them through time. You can, for example, take a piece of lettering, spin it round and change its colour and size through 20 frames of animation.

This process, and others like it, are calculated by the program – fortunately you don't have to position all the frames yourself. The program has been well set up to cope with all the tricky bits. In fact, the hardest thing you have to do is come up with a good idea and, having had one, try not to swamp it with 500 special effects all at once.

THE fades, wipes, shatters, crystallisation – easier to spell than describe – venetian blinds, outline, tile, ripple and buzz effects are all easy to use. The funnier sounding ones towards the end of that list are ways of bending the shape you are manipulating through time, based on a sine wave pattern.

The only way to describe the effect is to say that the graphic sort of swims – like the effect you get when a flashback is about to happen in a TV show. All the pixels are swept back and forth in a wavy shape.

Some most interesting effects can be created by altering colour through time. There are gold and chrome effects which change all the colours on the object to gold or silver tones. You can step cycle the colours on a graphic and "tween" the colours so you start with one and end with another.

A common special effect in space movies is used to show a very small spaceship travelling past a much larger one. In reality the models are probably about the same size as each other. The trick of making one appear smaller is done by filming the large ship and masking out an area of the film which is the same shape as the outline of the smaller ship. Then the smaller ship is filmed using the same background and laws of motion as the large ship. Finally the two films are overlayed so that the smaller ship fits exactly over the mask.

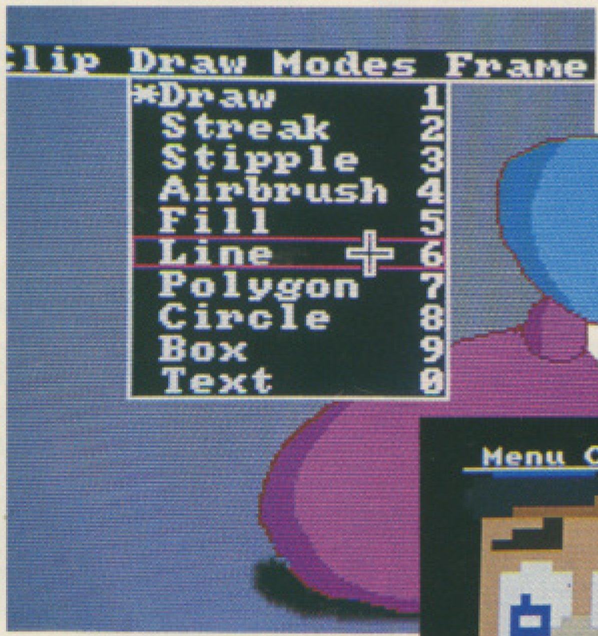
These masks are known in the movies as travelling mattes, and Zoetrope has them too, allowing access to complex windowing and combination effects – like a box moving around a screen, showing a view into another as if it was cut through.

It's easy to get blasé about this sort of thing when you've got an Amiga and see a brilliant effect, but some of the things Zoetrope can do are very impressive.

The drawbacks – like the NTSC screen size – are all easily fixed. It won't be long before they bring out a PAL overscan version, I'm sure. The only thing the programmers can't fix is how much memory you've got bolted on to your box.

Obviously if it's your aim to produce fun animations or flashy titles for home videos – and Zoetrope would do an admirable job of both – then you only need the minimum 1 meg.

But if you see the possibilities of Zoetrope in a professional environment, you need as much memory as you can afford. But this goes for any kind of graphics work. If you're in the business you'll be under no illusions – you probably have the ►



Artists will be happy enough with the draw options

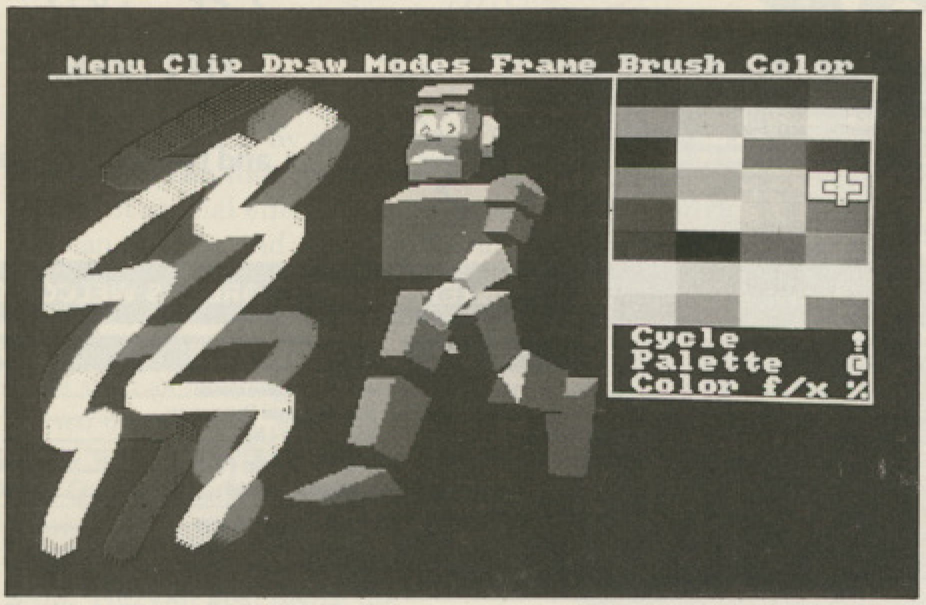


Zoom makes small things a piece of cake



WARNING

Versions of Zoetrope that don't say they are designed for use in the UK might be unofficial US imports, which won't work on a PAL Amiga.



Plenty of colours plenty of choice

◄ requisite kilobytes under your belt already.

I'm thinking of the new Amigist who thinks the only thing between him and brilliant graphics is the right software. Don't be fooled into thinking you can turn out Snow White and the Seven Dwarves on your A500 just by buying this package. Having said that, there are quite a number of Amiga graphics utilities that have fallen into the Wonderful category. A number of them even have a toe in the Stunning category.

Few have made it into the Totally Gobsmacked category as easily as Zoetrope.

REPORT CARD

Zoetrope: The Animation System.
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USEFULNESS
Ideal for home use, although suffers in the pro possibilities by having a small screen size.

EASE OF USE
Gleefully simple to operate. Like working a VCR, but without having to lie on the floor.

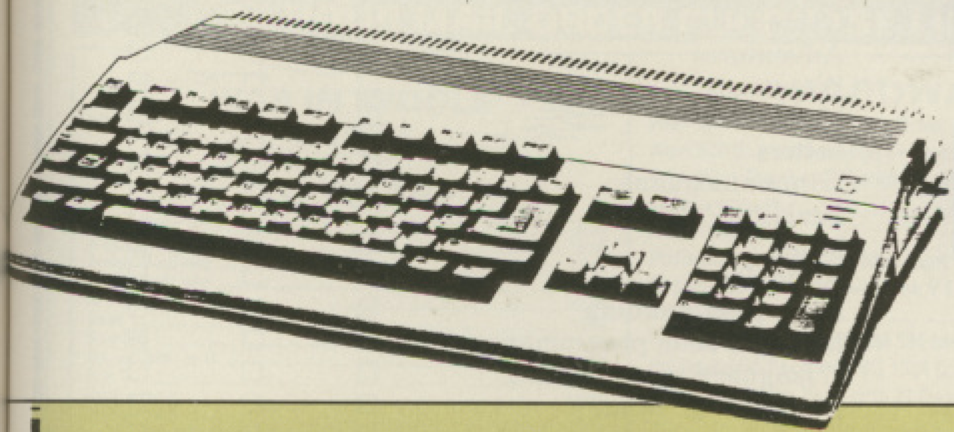
INTUITION
You can multi-task, but beware of the shrinking memory counter.

SPEED
Sometimes suffers from sluggish and sticky cursors, but speed of animations is first rate.

VALUE
A merest fraction of the cost of a comparable system in the real world. Give it PAL screen and its the best all-rounder available.

OVERALL *81%*
A classy act – one to impress your friends, your family and yourself.

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Tell us about you

The answers to these questions will let us know who is buying Amigas and in which areas of the country they live in. Among other things, this information will help us distribute the magazine more efficiently.

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● Are you ☐ Male or ☐ Female?

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☐ MicroLink ☐ CIX ☐ Compunet ☐ Micronet/Prestel

● Are you a member of a user group?

☐ AUG ☐ ICPUG ☐ WACCI ☐ Local club

Tell us about your kit

There is no point in us giving you articles on Midi software or Desktop Video programs if nobody has the hardware to run them. We'll supply the ammunition if you have the troops.

● How long have you had your Amiga? .... months

● Which language(s) do you use for programming your Amiga?

☐ I don't program ☐ AmigaBasic ☐ C
☐ Pascal ☐ HAL/S ☐ Modula-2
☐ Assembler ☐ Other (detail below)

....

● What have you bought and what are you saving your pennies' for?

	Already own	Intend to buy
A500	☐	☐
A1000	☐	☐
A2000	☐	☐
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Monitor	☐	☐
2nd disc drive	☐	☐
Hard disc	☐	☐
Dot matrix printer	☐	☐
Colour printer	☐	☐
Laser printer	☐	☐
Modem	☐	☐
AT/PC bridgeboard	☐	☐
Genlock	☐	☐
Camcorder	☐	☐
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Midi interface	☐	☐
Workbench 1.3	☐	☐

● Which computer did you own before your Amiga?

☐ C64/128 ☐ Spectrum ☐ CPC
☐ BBC Micro ☐ PC/clone ☐ Atari ST
☐ Other (detail below)

....

● Have you ever found a virus on one of your discs?

☐ Yes ☐ No

Tell us about your money

Before you spend the housekeeping on your Amiga, you'll want to know what that all-singing, all-dancing package is like. The answers to these questions will help us decide what kind of software we should be reviewing for you.

● What percentage of software do you buy from the following?

Mail order.......% Chain stores.......% Small dealers.......%

▶

◀

● In the next 30 days, how much (in £s) do you expect to spend on games software?

	1-10	11-20	21-30	31-50	51-100	Over 100
Adventures	☐	☐	☐	☐	☐	☐
Wargames	☐	☐	☐	☐	☐	☐
Action games	☐	☐	☐	☐	☐	☐
Other (detail below)	☐	☐	☐	☐	☐	☐

....

● In the next 12 months, how much (in £s) do you expect to spend on applications software?

	1-20	21-50	51-100	101-200	Over 200
Word processing	☐	☐	☐	☐	☐
Desktop publishing	☐	☐	☐	☐	☐
Communications	☐	☐	☐	☐	☐
Database	☐	☐	☐	☐	☐
Spreadsheet	☐	☐	☐	☐	☐
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Desktop video	☐	☐	☐	☐	☐
Music	☐	☐	☐	☐	☐
Programming tools	☐	☐	☐	☐	☐
Educational	☐	☐	☐	☐	☐
Other (detail below)	☐	☐	☐	☐	☐

....

Tell us about the magazine

This is the good bit – your chance to sculpt the future of Amiga Computing.

● Rate the contents of this month's issue out of 10. If you haven't had time to read one of them yet, please leave the box empty.

0. Not my cup of tea
1. Snore
2. Boring
3. Feeble
4. Weak
5. Passable
6. Average
7. Good
8. Enjoyable
9. Marvellous
10. Perfect

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Games reviews	
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Teenage Queen	☐
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● How much of *Amiga Computing* would you like to see devoted to the following topics?

	More	Same	Less
Games software reviews	☐	☐	☐
Business software reviews	☐	☐	☐
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Peripheral reviews	☐	☐	☐
Game Killer	☐	☐	☐
Adventures	☐	☐	☐
Wargames	☐	☐	☐
News	☐	☐	☐
Letters	☐	☐	☐
Communications	☐	☐	☐
Desktop Video	☐	☐	☐
Midi	☐	☐	☐
AmigaDos	☐	☐	☐
Basic programming	☐	☐	☐
Machine code programming	☐	☐	☐
C language programming	☐	☐	☐
Pascal programming	☐	☐	☐
Hardware projects	☐	☐	☐
Using art packages	☐	☐	☐

● How many other people look at your copy of *Amiga Computing?* ....

● Which other magazines do you read?

- ☐ Amiga World
- ☐ The One
- ☐ ST Amiga Format
- ☐ Amiga User International
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- ☐ The Games Machine
- ☐ Commodore User
- ☐ Personal Computer World
- ☐ Transactor
- ☐ Zzap
- ☐ Beano
- ☐ Ace
- ☐ Popular Computing Weekly
- ☐ New Computer Express

● If you were the editor of *Amiga Computing*, what would you do to improve it?

WARNING: Valuable spot prizes will be given to those readers who provide the suggestions which we find most useful (or those that make us laugh the most).

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RETURN OF THE JEDI

ALL is not well in Endor. Those imperial stormtroopers are harassing the populace, the "aww"-inspiring, oh-so-cute Ewoks. Although the most marketable thing to come out of Lucasfilms, they are right violent little beggars if you happen to be a stormtrooper.

Leia and Luke are a bit cut off in the forests of Endor – sounds painful – and have to run the gauntlet of stormtroopers on Speederbikes (TM, et al). One character doesn't get a Luke in – *(Bad joke – Ed)* (Irresistible – SCR) – so Leia is controlled by your mouse or joystick. The whole bit is like Spy Hunter with a Zaxxon perspective, plus added trees and Ewok traps.

Stormtroopers can cease to be stormtroopers in several interesting ways. They can be shot, they can collide with you or with bits of tree, or they can be trapped by the Ewoks. Ouch.

It's all nice and fast and jolly, with a kitschy little end sequence, which I won't spoil for you. Like all the Star Wars games, the first level is ridiculously easy; the option to start at different levels is welcome.

The second bit has Lando Calrissian – any relation of Lando Myfathers? – piloting the Millennium Falcon down the reactor tube of the Death Star. Using the same perspective as the forest bit, it is basically a question of avoiding the sticky-out bits and the annoying little Tie fighter bits. Shoot the reactor and get the rude word out of there, otherwise it's crispy fried Calrissian time.

Now you are Chewbacca at the controls of a scout walker, trying to run the gamut of logs and rocks on your way to the bunker. Since walkers are big, you have no way of telling the good people of Endor that it's only you and could you please tone down the violence a tad.

Moving logs can be shot, but the big piles of them have to be strolled around. Stroll is the word – the rather spindly walker moves as if it has bad feet. Not to worry, it gets you to the bunker, which gets blown up as soon as you arrive. Friends, who needs 'em?

Interspersed with Chewbacca's mechanical promenade is a split wave with Lando flying towards the Death Star. Just when you get to a quiet bit in the walker, you flick to Lando, get blasted virtually instantly and return to Chewbacca.

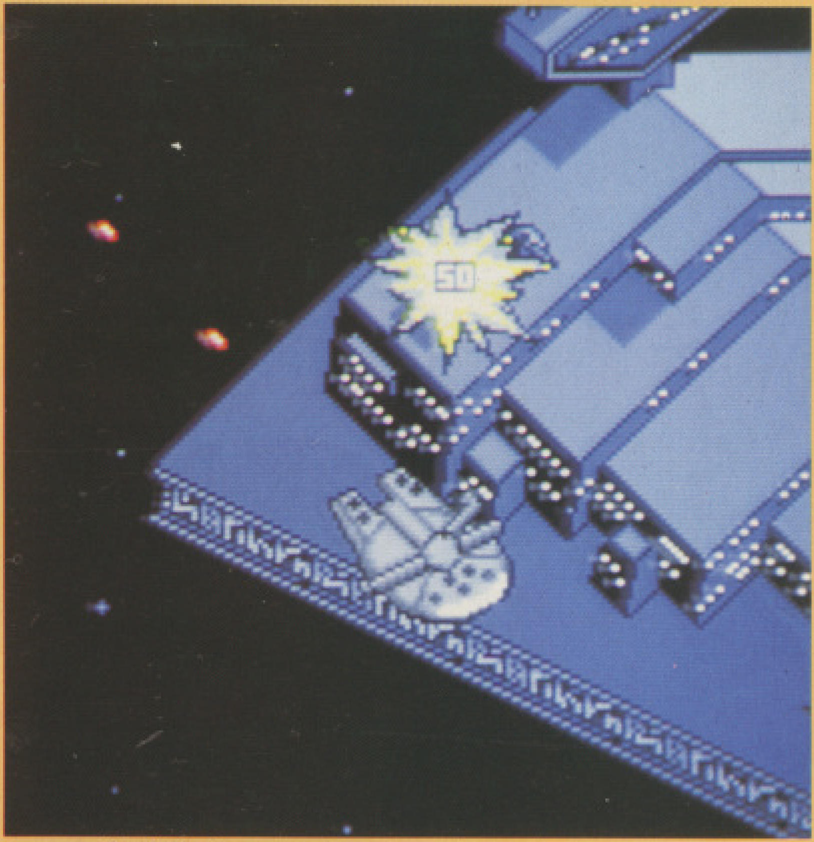
It's meant to heighten the tension, but all it does is lose lives. That may make sense for Mr Arcade Owner, but not really in the home.

Big admission time: I haven't seen the film. So to destroy the Death Star and then suddenly want to fly towards it seems a little bizarre to me.

Everything is carried out the way you'd expect on an Amiga – sampled speech from the film, pretty graphics... switch off the brain and be prepared for some unsophisticated violent enjoyment. But, if you've got one, you'll have to remove your A501 first.

Return of the Jedi is grand while it lasts, but since it's a little superfish (as in superfishul, not as in halibut) that may not be forever.

Stewart C. Russell

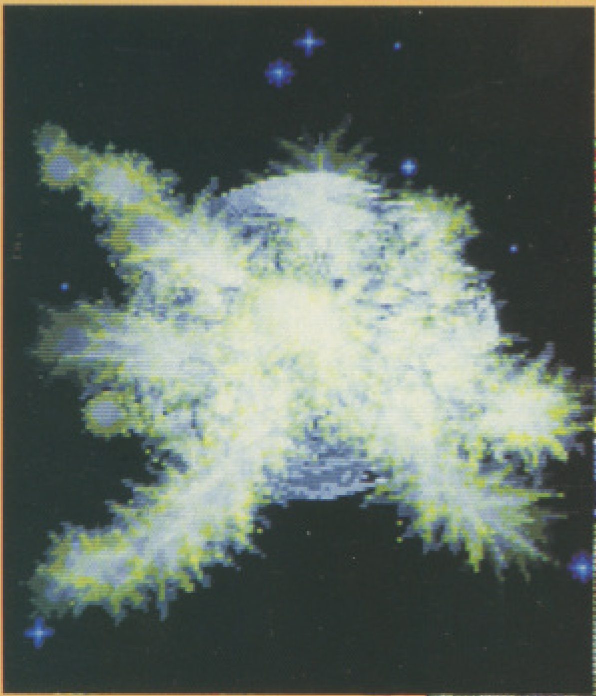


Interspersed with Chewbacca's mechanical promenade is a split wave

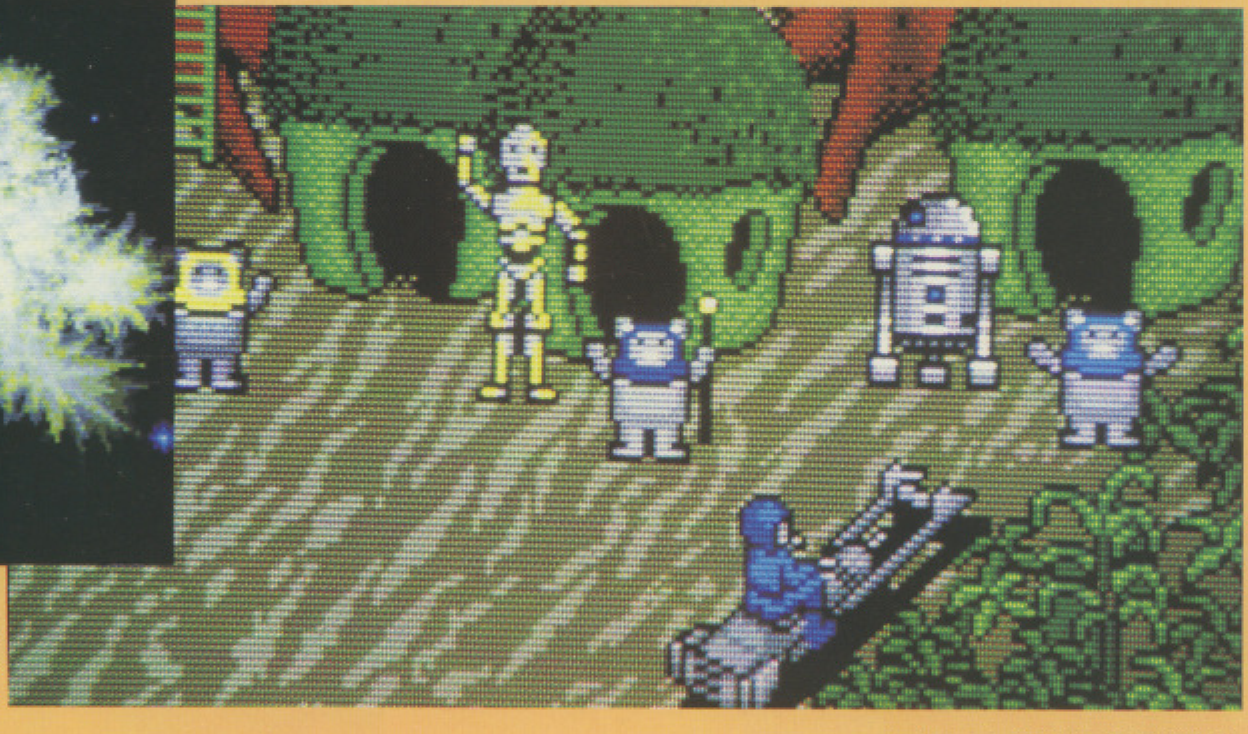
Return of the Jedi
£19.95
Domark

- Sound
- Graphics
- Gameplay
- Value

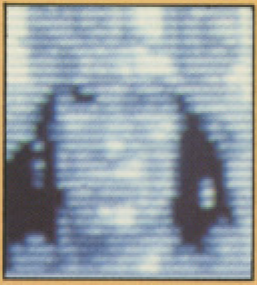
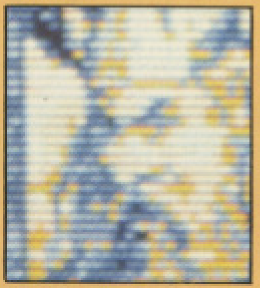
Overall – 63%

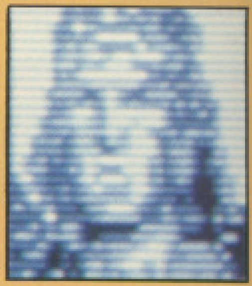


Exploding Death Star



The kitschy little sequence at the end of level one



THE powerful combination of US Gold, SSI and TSR has created a new computer gaming genre by taking the best elements from the most popular games on the market and combining them into a new hybrid.

At present there is no label to classify Heroes of the Lance, And being the forerunner of a new breed of computer game, it sets the standard others will have to better.

And a high standard it has set – it will be a long, long time before this game is surpassed.

You control eight adventurers – Tanis, Raistlin, Flint Fireforge, Sturm Brightblade, Tasslehoff Burrfoot, Caramon, Goodmoon and Riverwind – all of whom are taken from the Dragonlance Chronicles series of books.

These brave creatures have agreed to descend into the dungeons beneath a ruined temple, Xal Tsaroth, face all the dangers that this evil place contains and retrieve the legendary Disks of Mishakal, which will enable them to eventually confront Takhisis, the Queen of Darkness.

The dungeon contains all kinds of vicious creatures who will stop at nothing to decimate your party. Trolls, wraiths and spiders abound, but these are nothing compared to Khisanth, the guardian of the disks. She is a huge black dragon who can spit acid and is also extremely hard to kill.

The eight adventurers are well equipped with an array of innate abilities which, if used correctly, will enable them to obtain the required disks.

Six of the team are experienced in various forms of combat and can use weapons that come in useful at differing times. As well as close combat weapons, Tasslehoff has a hoopak, a combination of staff and sling shot, which can fire deadly bullets. Tanis carries a bow, while Flint can use a very vicious throwing axe which can be used to kill opponents from afar, reducing the number of wounds the party takes.

AMIGA COMPUTING
Value

The hard boys of the party, Sturm, Caramon and Riverwind, all carry weapons that can kill creatures with one blow, while Raistlin and Goldmoon rely on magic-based and god-given powers to survive.

Raistlin carries the Staff of the Magius. This allows him to cast eight spells, including a Magic Missile that delivers a series of blows to an opponent, and Flaming Hands, which lets sheets of flame pour from Raistlin's fingertips.

Goldmoon carries a magical blue crystal staff that allows her to cast more passive, but just as useful, clerical spells. These range from Cure Serious Wounds to Raise Dead.

Each staff has a number of charges which are used up by the continued use of spells. When drained they can be recharged by absorbing magic from spell-using opponents.

Gameplay is simple. Your characters are pictured at the bottom right-hand side of the screen in the order that they are exploring. Next to each is a bar chart which shows their state of health. Death is denoted by a character's portrait turning grey.

The left-hand side of the screen displays the direction the adventurers are travelling. If they find an exit or passage, the direction it is located in flashes red, indicating that travel in that direction is possible.

The top part of the screen is where all the action takes place. Your party is represented by the leading character, who does all the fighting, although if someone with spell casting abilities is present in the front four places, spells can be cast at the same time as combat.

Heroes of the Lance should satisfy a wide range of computer games players. It is action-packed, but not just with combat situations. There are traps to avoid, magic potions, rings, swords and shields to collect, pits to be jumped and money to be collected.

Although every games player will appreciate the stunning graphics, tremendous scrolling and realistic sound that Heroes provides, they won't appreciate what it will take to finish this game.

You will need the reactions of an arcade ace, the forethought of a role player and the inquisitiveness of an adventure buff. Getting the combination right will keep you glued to your monitor for hours.

Wayne

Heroes of the Lance
£24.99
US Gold

Sound
Graphics
Gameplay
Value

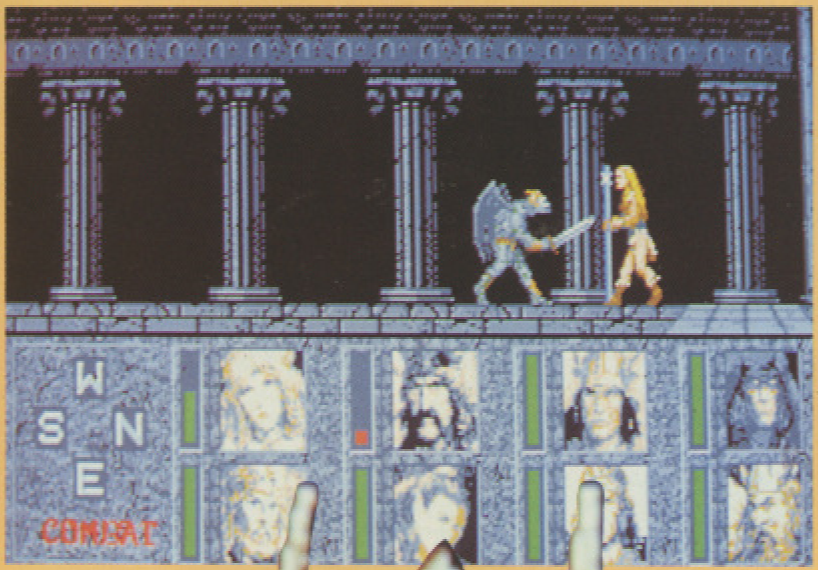
Overall – 88%


The dungeon contains all kinds of vicious creatures











PURPLE SATURN DAY



One of the four intergalactic challenges

THE concept of tying a number of small games together to produce one big one – or an ordinary sized one if you want to be cynical about it – has always appealed to software houses, and even, on occasions, to the buying public.

I can see why it's a good idea for the software house. All you have to do is produce a number of sub-standard, empty games and pile on the dressing and plot. Easy bucks.

Infogrames has come up with its own version of this pot pourri concept – Purple Saturn Day – in which the dressing is very stylish, and most of the four games are pretty dull.

It's all based on an intergalactic sports day held around the hurtling rings of Saturn. Eight different species, one of them human – that's you – compete in a knockout competition, using all four events or sub-games in each round.

The winner gets the wonderfully exciting prize of a kiss from the Purple Saturn Queen who, in true French programming tradition, is a slinky galactic nymphette. I'm sure any women playing the game will be thrilled.

Down to the games then, which consist of Ring Pursuit, Tronic Slider, Brain Bowler and Time Jump.

Technically the best of the lot is probably the first, Ring Pursuit, which has you racing through the rings of Saturn. The object is to out-score your opponent by dodging to the left and right of red and yellow disused spaceships. This is all happening in 3D, and there's rocks in them there rings. Horribly metallic boings resound with every collision.

And they come all too regularly.

As you move on to the next event you'll realise that each has its own quite stunning title page. It's a pity the games aren't up to the same standard.

Tronic Slider is another exercise in 3D, decidedly easier to play with a joystick than a mouse.

You're on this flat playing area that's covered in bollards and there's this energy blob wobbling around. You and your competitor shoot the hell out of Mr Blob, which results in lots of blobettes. You run them over with your motorised vacuum cleaner for the points, before chasing after Mr Blob again.

It's nicely done, but can hardly be described as a thrill a minute.

The next event could have been quite good. Alas the programmers got too clever for their own good. It involves activating and deactivating circuits in a brain by means of a pointer.

Now if this pointer was just an ordinary, everyday sort of pointer the game would be too easy. So what you have is a 3D pointer which you fire at the circuits. Fine, except it wobbles around and turns accurate play into wishful thinking.

The last event, Time Jump, is more mind-bogglingly naff 3D stuff. You attempt to catch sparks crossing the screen which are then used to power the catapult that hurtles you into the next dimension.

Purple Saturn Day has a number of very good features, excellent sound effects and some very effective graphic sequences. The problem is that the individual games are fairly uninspiring – there's no real desire to compete again and again.

Duncan Evans

Purple Saturn Day
£24.95
Infogrames

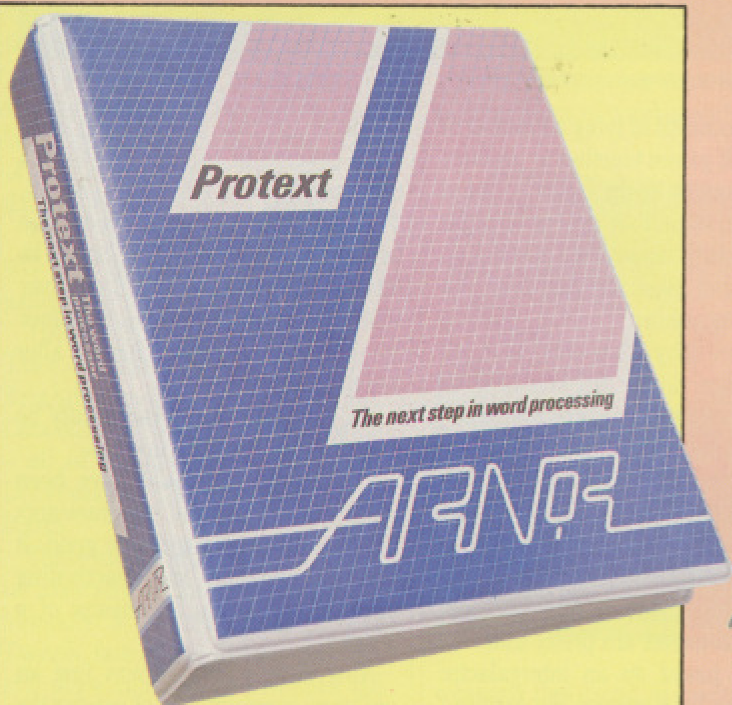
Sound
Graphics
Gameplay
Value

Overall – 57%

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'...merely the best word processor for the Amiga'

– Reviewed in Amiga Computing January 1989

TO ORDER YOUR COPY, TURN TO THE FORM ON PAGE 97

CUSTODIAN

FEEL like blasting the living daylights out of a ravening horde of despicable aliens? Good, so do I. And there can be few games that provide more bangs per buck than Hewson's latest contribution to the shoot first and ask questions later variety. Custodian comes packed with a bigger range of weaponry than even Rambo would know what to do with.

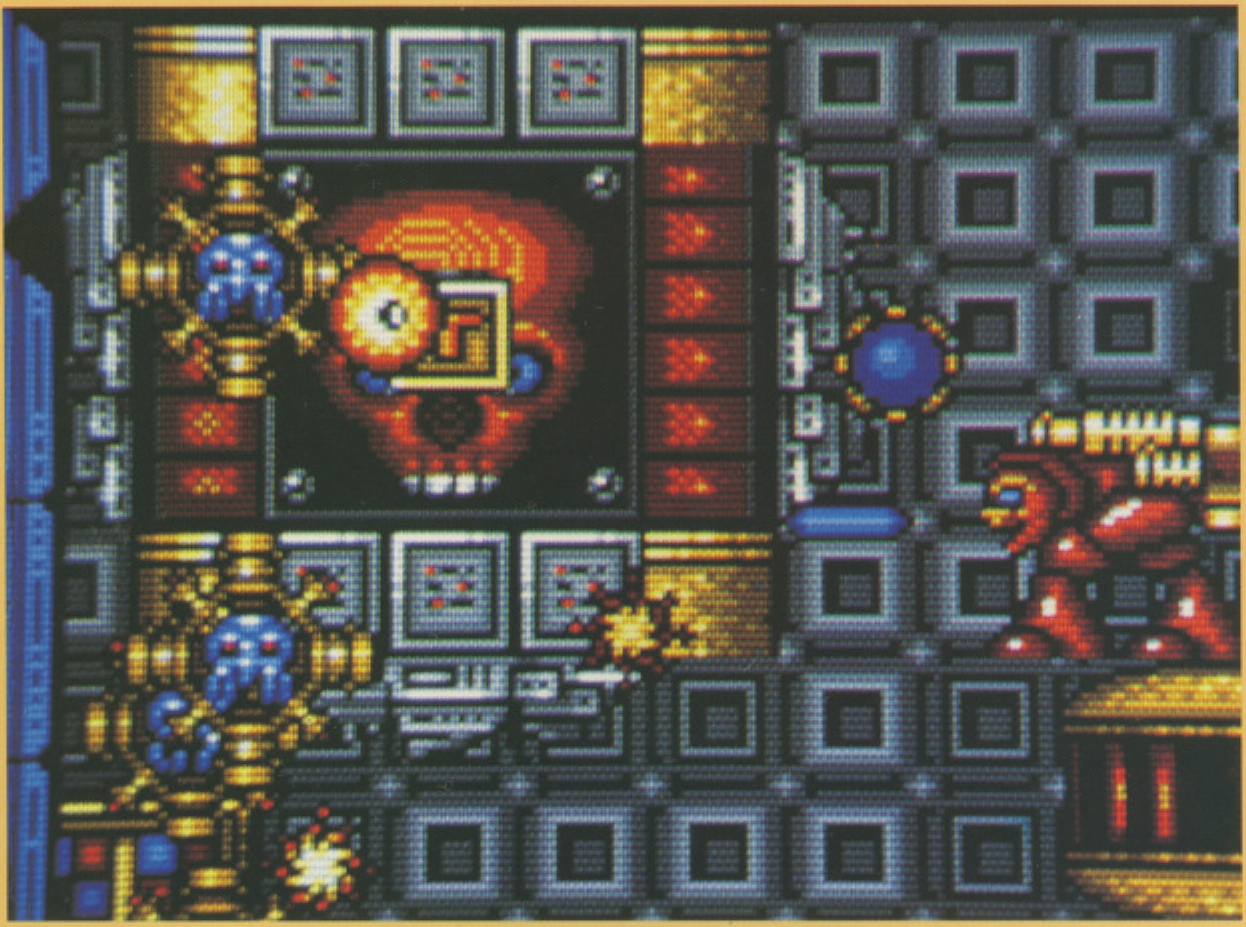
The action takes place within a tomb of unspecified origin but distinctly Aztec in appearance, as is the opposition. Indeed, the main character bears more than a passing resemblance to Quxzopyatel, the Aztec god of alternative keyboards.

The tomb is infected with alien pods which are draining its energy. Rentokil has blown out. Now it's up to you. Your job is to protect the tomb by collecting the pods and destroying them in the annihilation chambers.

It has to be said that Custodian is not an easy game to get into. The action is fast and furious. The variety of aliens and bewildering array of weapons available to you mean that your first attempts are likely to be short and sweet.

Having said that, at this price the last thing you want is a game that holds your interest for no more than five minutes. Custodian will keep you at it for a good deal longer than that.

The alien pods appear at random, in a quantity set by the current level of play, up to a maximum of 20. They can fire a heat-seeking sucker that drains your energy. Initially they are very weak, but they grow at intervals, becoming more powerful and absorbing the tomb energy in the process.



While carrying a pod you can enter an annihilation chamber

You start the game with a life energy. When this is drained you die. If the energy level of the tomb reaches zero, it shuts down, taking you with it.

You have 1,000 credits with which to buy weapons. Credits are won by killing aliens and by collecting pods. Destroying the pods replenishes your energy levels. Weapons are bought or sold in the ammunition silos that are scattered about the tomb.

The aliens attack in waves, using a variety of weapons and tactics. Various aliens are sensitive to different weapons and it is best to select your weapons with care if you want to survive longer.

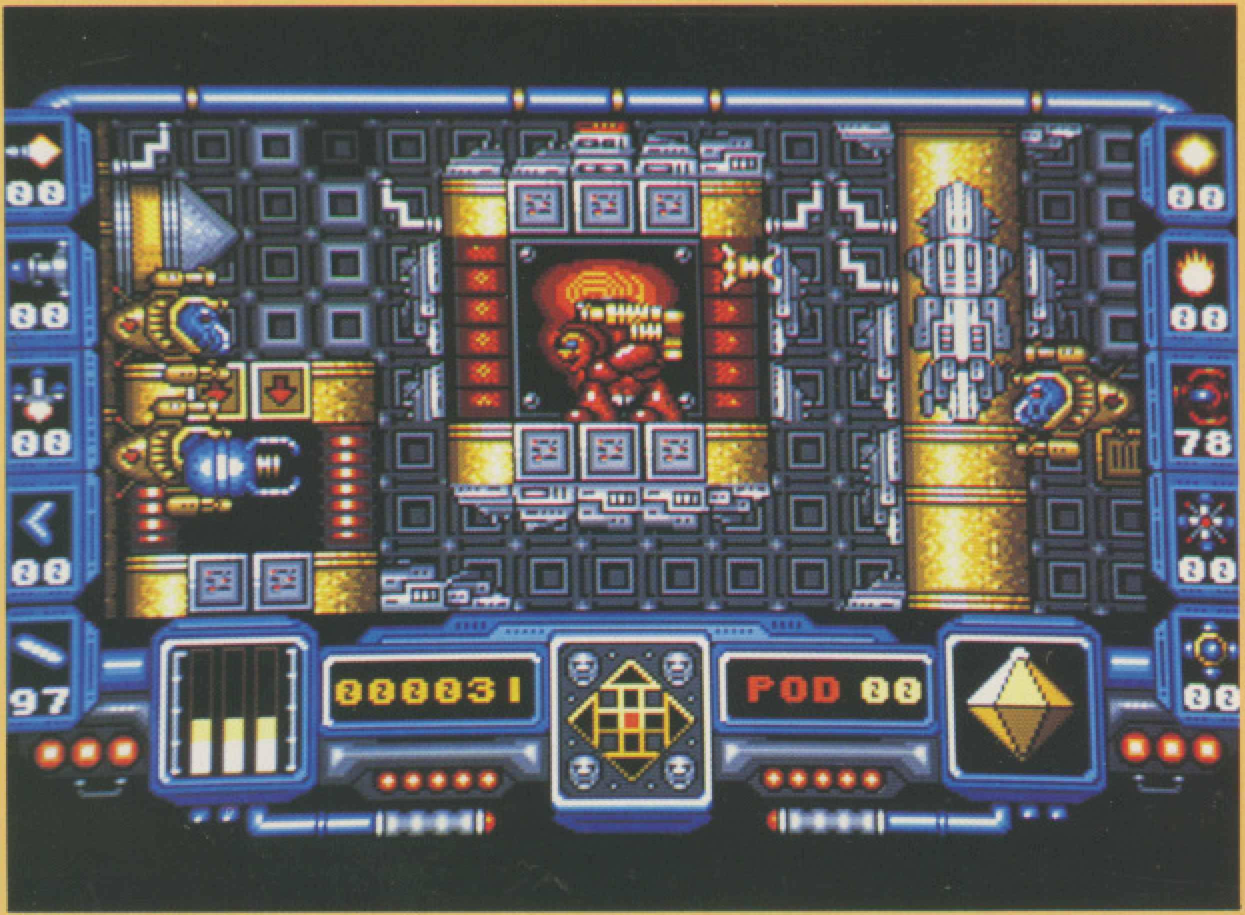
The pods are located by using the pod pointer, which indicates the nearest one on the map. However, the indicator will only work while you are not carrying a pod. Collection of more than one is possible but must be done blind.

While carrying a pod you can enter an annihilation chamber, regaining 1,024 energy points as you do so. Once inside the chamber the pods appear; they can be destroyed by aiming and pressing fire.

If the pods are left alone they gradually grow larger until they reach the final red stage and disappear back into the tomb in a weak form so that they have to be collected again.

Finally, when all the pods have been destroyed, you have to face the guardian of the tomb who is, as you may have guessed, not at all friendly.

Mike Rawlins



The aliens attack in waves, using a variety of weapons and tactics

Custodian
£19.99
Hewson

Sound
Graphics
Gameplay
Value

Overall – 82%

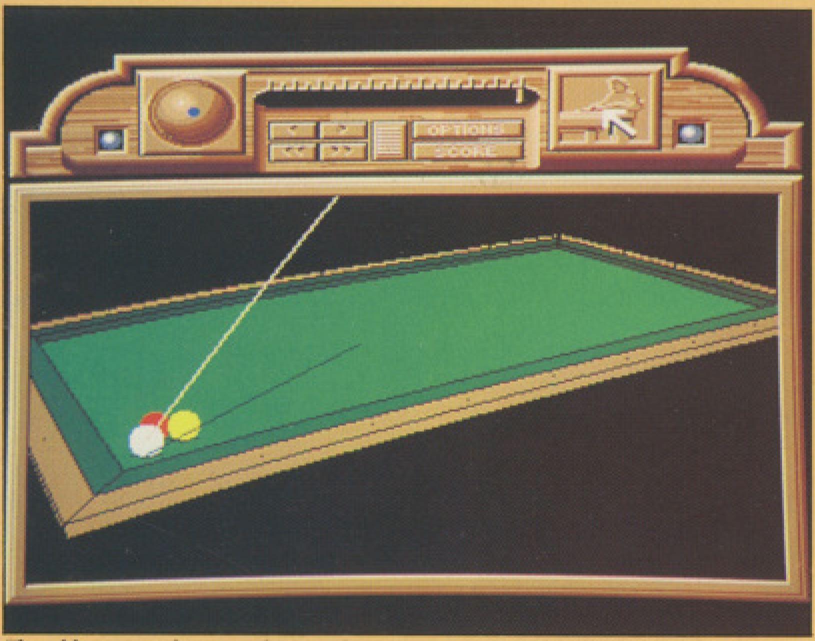
BILLIARDS SIMULATOR

A LAVISH baronial retreat, circa 1900. Colonel Pemberton is about to take his turn at the billiards table. On noticing something strange, he motions to his faithful friend, Smyth:

"I say, old chap. Come over here. Don't these Frenchmen take damned liberties with our game? Where are the pockets? What's this tommy-rot about Plutonian gravity?

"I quite agree, sir", Smyth sagely replies. "It is a frightfully boring game, don't you think? One has to make improvements to sell it".

Ninety years later, when the game was converted for the Amiga, it turned out that Smyth was absolutely correct. With only three balls on the table, Ere did do some extraordinary things to try and jazz up the gameplay.



The table is viewed in unsophisticated 3D

The table is viewed in rather minimalist and unsophisticated 3D, with cue motion controlled by the mouse. You select the direction in which the cue points with the left mouse button and the angle it makes with the tabletop with the right button.

Instead of contorting yourself and splitting your trousers when trying to achieve an awkward shot, a few deft touches can rotate the table to a more sensible position.

Once that phase is over, you select the spin by moving another cursor over a small diagram of the cue ball, select the strength of shot using a slider and finally click another icon to play the shot, miss the two object balls completely and collapse with exhaustion.

The scoring system is not explained. The best thing to do is try to hit as many balls together as possible and hope the computer will be generous enough to give you a solitary point.

There are a few twists. Gravity can be fiddled with by setting the game on different planets. You can alter the elasticity of the cushions, the width of the cue tip and the roughness of the cloth.

The fundamental problem with Billiards Simulator is that there is very little challenge involved: No target score, no excitement, no fancy displays as a reward, not even a derisory beep for each point.

The graphics are reasonably good, particularly on the menu screens, and there are recognisable effects and an excellent jazz piano soundtrack which plays before the game. But they don't make up for the poor gameplay and lack of realism.

Alastair Scott

Billiards Simulator
£19.99
Ere International

Sound
Graphics
Gameplay
Value

Overall – 35%

TRACK SUIT MANAGER

MEDIUM wash, spin dry, cool iron, do not bleach. That's about the best way I know of managing a track suit. Others may beg to differ. Surely the good people at Again Again haven't sunk to the depths of producing a laundry simulator?

Not quite. What they have done is write a football management game. Now before you switch off your *Amiga Computing* to go and do something less boring, Track Suit Manager is different. Gone are the days of "You have no dosh – press 99 to restart" and mammoth negative loans. This is purely a game of two teams and 90 minutes, Brian.

You are an international team manager, and all you are interested in is winning the Nations Cup.

The loading screen shows a reasonably poor rendition of the box cover – a worried footballer on the right, and a manager who just happens to be wearing a tracksuit frantically yawning at him. Doesn't bode too well, does it?

The next bit is choosing the team. Stick to being England unless you want to type in at least 30 different players. You can view the entire number of available players and check their performance before you choose your squad.



A scrolling commentary keeps you in touch

Choosing the team is great. Commodore Amiga (Inc, (R), (C), TM, et al) gave you a mouse and a nice set of routines to handle it. Track Suit Manager has a menu system. What does it use – a joystick. Very logical.

The absence of any noise whatsoever, the total lack of graphics and a Save to Tape option smacks of a hurried conversion. I went to all the bother of getting a cassette deck wired up and the option printed, "This is not an option." Pah!

Once you've got your team chosen, you can watch matches, scout matches, arrange matches, arrange tours and even play a match if one comes up in your group. Watching a match involves trying to read scrolling commentary and keeping one eye on a white line representing the field position of the ball.

The speed of the match can be varied from a minute per second to about a minute per fifteen seconds. Playing a match is the same, except you can alter team tactics and substitute players.

Everything about the team and the players can be changed. Individual attacking styles, defence, marking, team formation – you name it, you can probably change it.

Somebody somewhere has spent a very long time on Track Suit Manager. Much thought went into its conception. Unfortunately, very little has gone into the Amiga version.

No use whatever has been made of the Amiga's nice little treats, apart from charging an Amiga price. So what possibly can be said in its favour? If you're a strategist, you won't get much out of it. An arcade fiend won't get anything out of it. Adventurers will probably wander off elsewhere. Who is going to buy it?

I'll tell you who – football fiends! If you can recite the Association rules backwards in Sanskrit for extra points you'll love it.

But if you are not already sold on football, it won't convert you. Its presentation is, frankly, dire.

Stewart C. Russell

Track Suit Manager
£19.99
Again Again

Sound
Graphics
Gameplay
Value

Overall – 23%

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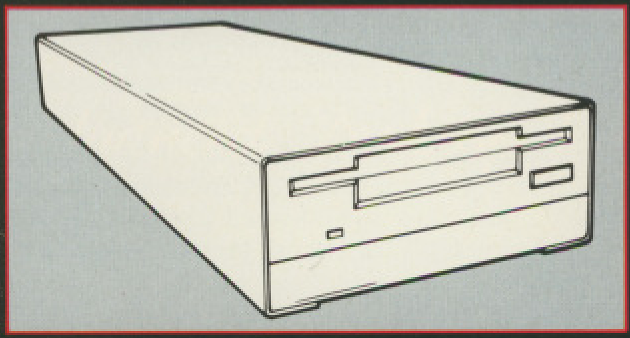
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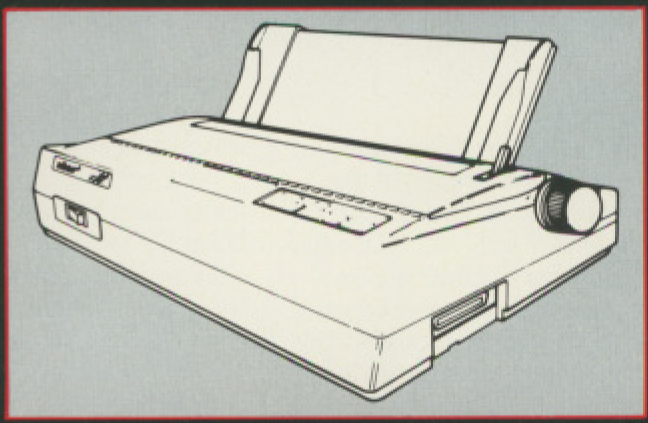


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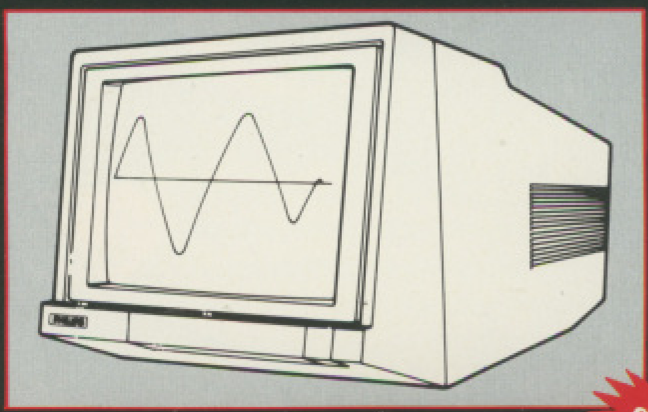


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PHANTOM FIGHTER

MACMIXDUNE chewed off the end of his cigar and spat it out. "The Badlands are full of aliens from across time and space. I shall come with you", he said.

"Where are the Badlands?" I asked.

"Turn left after the Nastylands, keep on past the Wickedlands. Before I was an elder I was a geography teacher", said MacMixDune chewing off more of his cigar.

"If you're so smart, why do you sound like a McDonalds special?"

BigMacMeal shrugged and climbed into the Phantom Fighter. As I climbed in with him I noticed the loading screen was very pretty. Suddenly the Phantom Fighter rushed forward at breakneck speed. It slowed down as a band of angry aliens loomed over the horizon.

"Looks like Psygnosis's Menace to me", I said.

"Sort of... I suppose". BigMacFreeDrink turned red.

"It's exactly like Psygnosis's Menace, except not so good. Stuff this for a game of soldiers, I'm going back to playing Amiga Elite", I said,



The backgrounds are pretty – the music terrible

parachuting out of the Phantom Fighter. As I drifted down towards home I heard CheeseBurgerFrenchFries call out: "I bet it crashes on you..."

Although originality is in short supply nowadays, you can get away with ripping off games like R-Type and Nemesis without shame if you produce a game of arcade quality. Emerald Software has failed to do this. In fact if you put your nose very close to the manual you can almost smell a hot day in a Korean sweat shop.

The action, if you can call it that, takes place on five horizontally and vertically scrolling screens. Upset aliens swirl around in front of you, leaving icons to give you more firepower. Since this is obviously not in their interest, why they do this is a mystery.

At the end of each screen an alien, and usually the same alien, gets mad and spits more flames than a fire eater with a bad cough. How many times have you done this before?

Polish and style is very important, especially in Amiga games; Phantom Fighter is suffering from a distinct lack of both. Using the system text font for the score line is pure laziness. And after the first screen you'll have seen all the aliens – only the background and attack formations change.

Since the main reason people stay glued to their screens is to tackle new aliens, half the fun is lost. Having said that, the backgrounds are very pretty – but the music is terrible.

Hugh Allen

Phantom Fighter
£24.99
Martech

Sound
Graphics
Gameplay
Value

Overall – 55%

TEENAGE QUEEN

ONCE loaded, the well-sampled voice of a young girl giggles and tells you, in French, that she wants to play with you. Who could refuse an offer like that? Not me.

After clicking a mouse button, a well drawn pair of decidedly male hands appears, holding the cards which you have been dealt. The game of poker is played with the usual rules; you can elect to stay or bet on your hand, then depending on what the French sort does, you can call, raise or drop (fold). All options are selected with ease using the mouse and pointer.

The number of chips you possess, the amount in the pot and the amount the m'elle has are all displayed in a clear comic-look font. If the poor girl loses more chips than she currently owns, she buys some more from you by removing an article of clothing.

As she gets colder and colder, her remaining clothes become more valuable and her skill with the cards increases.

At times it is very, very hard to believe she is not operating with some insider information.


The pictures are superbly drawn, mostly in flesh tones

The graphics, which let's face it are the main reason for playing the game, are not digitised. Instead they have been superbly drawn, mostly in flesh tones, by Jocelyn Valais.

If you keep winning the girl will shed her clothes and a new picture is loaded. This continues until she has absolutely nothing more to swap. At this point you can safely assume that you have won.

There is no animation – your cards simply plop on to the screen. Synchronising Fifi's mouth to her speech would have been well worth the extra effort involved, and perhaps a further touch of realism could have been added by applying a shaking motion to the hands holding the cards.

The sampled voice will giggle and tell you whether or not you have lost the hand. After you have amassed a few hundred chips the computer will utter: "Ohh... Oui... Encore!" Ahem. If you thought that the female option of the "say" command supplied with the Amiga was disappointing, then this'll make up for it.

Some of the sounds get quite close to the limit of innocence – when the girl is getting quite chilly, for example, a touch of the space bar will illicit a moan that sounds like she has just discovered something better than a 40 meg hard disc bolted to her Amiga on Christmas morning.

It is always hard to judge the lasting qualities of a strip poker program. Once you have succeeded in removing all the clothes you are unlikely to want to spend more time trying to do the same thing again.

I did succeed in playing the game to its conclusion – purely for research you understand. Unfortunately I did it in only one sitting, even if it was 11 hours. The end picture was well worth waiting for.

Teenage Queen goes way beyond the Benny Hill, even if the drawings are of a stylised quality rather than photographic standard. To avoid accusations of sexism, a version featuring a man undressing will be released. I have already applied for the job and am expecting a phone call any day now.

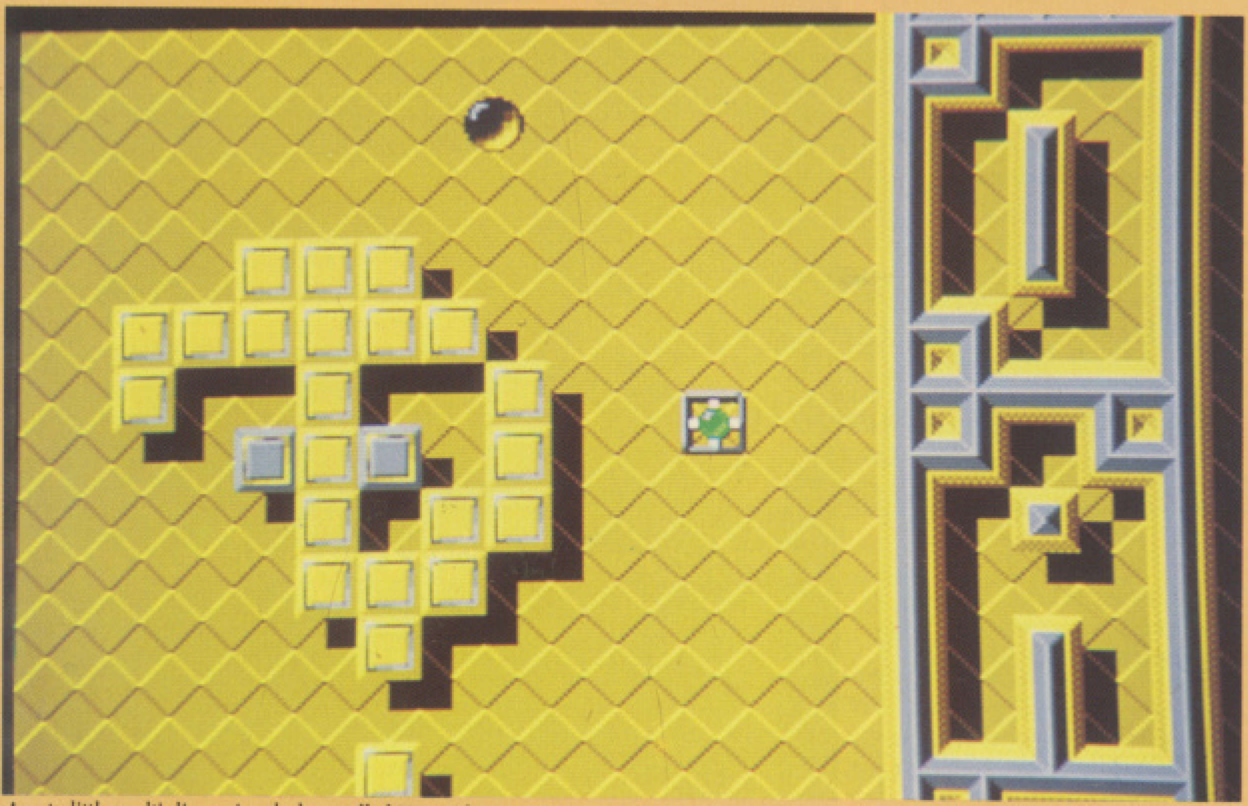
John Kennedy

Teenage Queen
£19.95
Ere International

Sound
Graphics
Gameplay
Value

Overall – 77%

TITAN



A cute little multi-dimensional place called Vegapolis

THE first time we see the Amiga doing the biz with a game, we surely think: "Cor, well I never did!" Or words to that effect. Sound and graphics to make a grown man weep, and with initial impressions not far short of the illegal.

But then we go: "Hmmm, what's the game like?". That, my friends, could well be another story.

Titan just oozes French style. Even the disc manages to exude Gallic flair and still fit in the drive. OK, so maybe Titan has you charging about with a bat after a ball, but there's plenty of scope in that scenario.

You're thinking that you've seen them all – Arkanoid, Giganoid, Veryanoid – they're everywhere, and they're all the same. Titan isn't.

First of all, you can charge about in four directions. Secondly, the ball can't disappear off the bottom of the screen. Now there's a turnip for the books.

The thing is, we're in the future here – 2114 to be precise – in a cute little multi-dimensional place called Vegapolis. There are too many people in Vegapolis, and the city fathers have to find a way of getting rid of some of them without anyone realising exactly what is going on.

Mr Hibrys, an analytic conceptor by trade, suggests a new leisure dimension where people can compete against (un)natural forces. The prize for coming out the other side is 1,000 Kronurs – loads of dosh in Vegapolean terms.

Hopefully, enough people will be lured into trying their luck, but not enough will be able to complete it to win the money. Even in the future, City Hall policies remain the same.

So we've got our multi-facetted magnetic bat thingy and a roundish sort of energy blob, which could in a bad light be taken for a ball. The only things that can do us any harm are those skulls that are dotted about, possibly the remains of past competitors.

White ones are plain nasty and do for anything, bat or ball. Green ones – mould I presume – do for the ball but are a rather nice line in munchies for the bat. What are these Titus guys on? Where can I get some of it?

The first couple of screens don't have skulls, so basically your job is waiting till those screens are over. Twiddle your thumbs too much though and you lose one of your myriad lives.

In later screens your job is almost purely to stop the ball hitting the nasties, occasionally giving it a dunt just to stop it getting bored.

There are various types of blocks which appear, disappear, allow one-way traffic, get in the way, confound, confuse...

Energiser blocks are a bit cunning – they allow you to alternate places with the ball, along with a melodic little sample which sounds almost totally unlike the odd bit in the Star Trek theme. This allows real strategic play, or is great just for the hell of hearing the wee noise. And you thought reviewers were at least semi-sentient.

All this action is conducted on a scrolling, overscanned playing field which, if you use the mouse, increases the viability of an ongoing vomit situation. They would insist in having a patterned background, wouldn't they? A manic gladiator beats hammers away in the background, and most of the other FX are sort of drummish.

Like most Titus games, loading is accompanied by a sampled tune. This time it's quite adequate and is actually not off key. All the nice watery effects on the title screen and mammoth high-score table are pretty, but serve little purpose beyond initial Wow! value.

The promise of 80 levels may be daunting, but the game can be saved and restarted with the full number of lives so it is more of a test of patience than anything else.

Since all you do is supervise the ball – it's too fast to follow – the game is really rather dull. There is nothing to force you to keep playing, let alone stay awake. So there might have been many man years of work put into this – the skill's there, the will's there, the gameplay isn't.

Stewart C. Russell



They would insist on a patterned background, wouldn't they!

Titan
£24.99
Titus Software

Sound
Graphics
Gameplay
Value

Overall – 58%



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4TH & INCHES

ISN'T it amazing how clever these American football (hereafter football) players are? I mean, they all go to university and they all come out with degrees. So maybe they have to spend at least 30 hours a week outside training, but why can't we be like that? Then again, how many of us would want a degree in Applied Running About or Advanced Drooling?

4th and Inches is all about the tactics and skills of football. Best played with a joystick – in port 1, a pain for single players – it includes two-player options using mouse or stick, timing options of five to 15 minutes per quarter, and a Biblical quote from a guy called Paul.

It's also got some semi-rancid tunes, which initially sound lovely but drive you up the wall when you realise they're played every down.

As with the real game, there are many possible plays with many variations on each, involving different combinations of players. Other things that stay the same are the silly names. Shorts and Nickels are defensive; Double Tight Ends and Pro Sets are offensive. And quite rightly, too.



You have four downs to gain 10 yards, otherwise you lose possession. The first thing to do is choose the formation – five are given, with the sensible one as default. You make your choice and the little chaps rush into formation.

Next you have to choose the play – again, five are given. Finally you select the position that will do the action. Football freaks will be incredulous at the lack of jargon used here.

If you choose a totally gaga option when making an offensive play, the program burps at you. The guys at Accolade must have spent hours drinking Coke and jumping up and down in front of the mike.

Virtually anything goes defensively – but not very effectively if it's really implausible. It can be a little annoying to see a carefully planned play result in a 38 yard gain for the opposition.

The playfield doesn't scroll along, instead it flicks in the manner that some sports productions do, with a flash to the next view. This is all very well, but the action is usually split up just when your running back is about to get creamed. The little chaps, who in real life are anything but little, are neatly produced with clean graphics and good animation.

The computer opposition is utterly fallible and will gladly leave plays incomplete just to make you happy. They still tend to beat you 27–3, but you can't have everything.

4th & Inches makes you want to play it, even though the tunes make you want to join the Neighbours School of "Acting".

Stewart C. Russell

4th & Inches
£19.99
US Gold

Sound
Graphics
Gameplay
Value

Overall – 71%

THE MUNSTERS

AMERICAN TV in the mid '60s was hot on cute spooks. Shows like Bewitched, where a puckish housewife did nothing more scary than twitch her nose, were all the rage. Another shadowy sitcom was The Munsters, a hit over there but never quite a cult on this side of the Atlantic.

However, any famous TV show is worth hanging a license on, and so we get, 25 years after the first broadcasts crypt out, The Munsters computer game.

The running gag of the show was that although caked in mad Max Factor and looking like death warmed up, the members of family Munster were nice guys and ghouls.

The game is based on the idea that as a punishment for all this niceness the Prince of Darkness has sent his truly evil mobsters to kidnap the one normal character, Marilyn. In order to release her from the demonic clutches, the rest of the Munsters have to wander through their house, collecting bits in the right order.

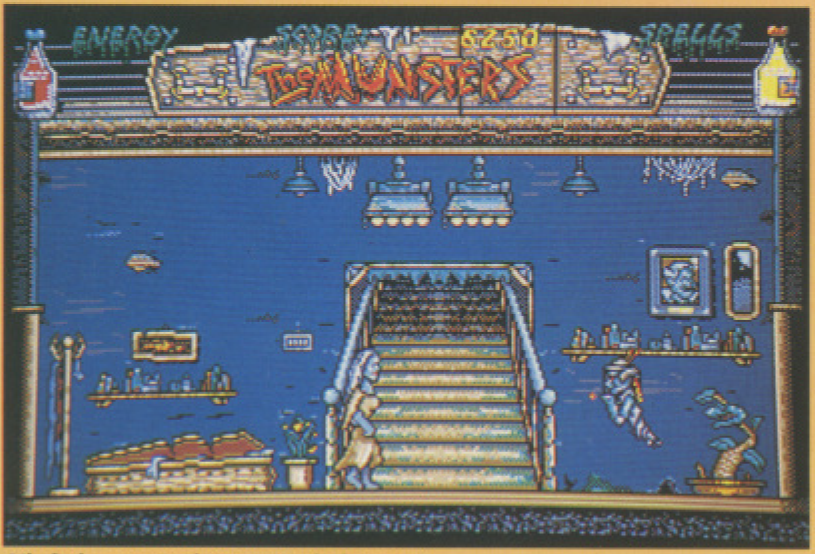
It takes three Munsters to get through the game, you control each in turn. First off is Lily, who gets this, that and the other and activates Granpa, who then has to head off somewhere else followed by Herman, who finally takes over.

Against the massed ranks of Old Nick's army you have spells. These look remarkably like glowing tennis balls – ever seen a glowing tennis ball? But lob them at the spooky sprites which infest Schloss Munster and you won't go far wrong.

The house is depicted in two dimensions. You can walk along the floor or up and down stairs, but that's it for manoeuvres.

The graphics are pretty, lots of background detail and interesting objects which, if you can't collect them, do absolutely nothing. Once collected, objects disappear for good and play no further role in the game beyond letting the character complete his, her or its part in the, erm, plot.

The ectoplasmic enemy swoop from out of the ceiling, behind the doors or from the stairwell. Some can be zapped by the balls, others have to be dodged. This isn't always possible, and close study of the perambulatory habits of the nastier customers is needed to prevent an all too frequent demise.



Lily finds granpa and Herman in the basement

There's only one life per game, and this is lost either as a result of energy depletion by lots of small spooks, or by total lifeforce removal following a brush with a really evil entity.

This game is so scary that it frightened my Amiga into not working unless I took out its extra memory and hid it under the duvet. "Amiga – All Models" boasts the box. This is not true – only 512k machines will run The Munsters.

The fact that there is precious little to do is partially hidden by the way in which it is far too easy to die and start again from the beginning. Pictures are so-so, sound is minimal, as is the chance of this game holding any Amiga owner's interest for more than 10 minutes.

Rupert Goodwins

The Munsters
£19.99
Again Again

Sound
Graphics
Gameplay
Value

Overall – 42%



Hint parade

Awright poke pickers, it's Max "The hacks" Tennant's time once again to delight you with his fantastic game-winning ways

HELLO games wizards everywhere. Particularly Tony Harmer. Thank you for your tip about holding down the fire button to get around corners in Test Drive, but we've already done that. Still I was particularly impressed that you should write all the way from Centereach, New York.

For some tips we haven't had we need to look to the exotic land of Birkenhead and the abode of Jason Allen. His tips are plentiful: In Cybernoid press space at the title screen, then type RAISTLIN and press space again for infinite lives. Press space once more and tap N to jump to the next level.

Once you have saved those worlds it is off to win at Rolling Thunder.

For infinite energy in the US Gold game type JIBBBY then press I to increment the level.

After that you need a good run around a track to blow out the cobwebs. But the surefooted follower of Flojo will take to Daley Thompsons Olympic Challenge with the correct shoes. For training, wear training shoes; 100m running, spikes; long jump, long spikes; shot putt, long spikes; high jump, flat shoes; 400m, running shoes.

Then on the second day don the short spikes for the hurdles; half spikes for discus; track shoes for pole break, sorry pole vault and track shoes for the 1500m. Use Lucozade for the 400 and 1500m.

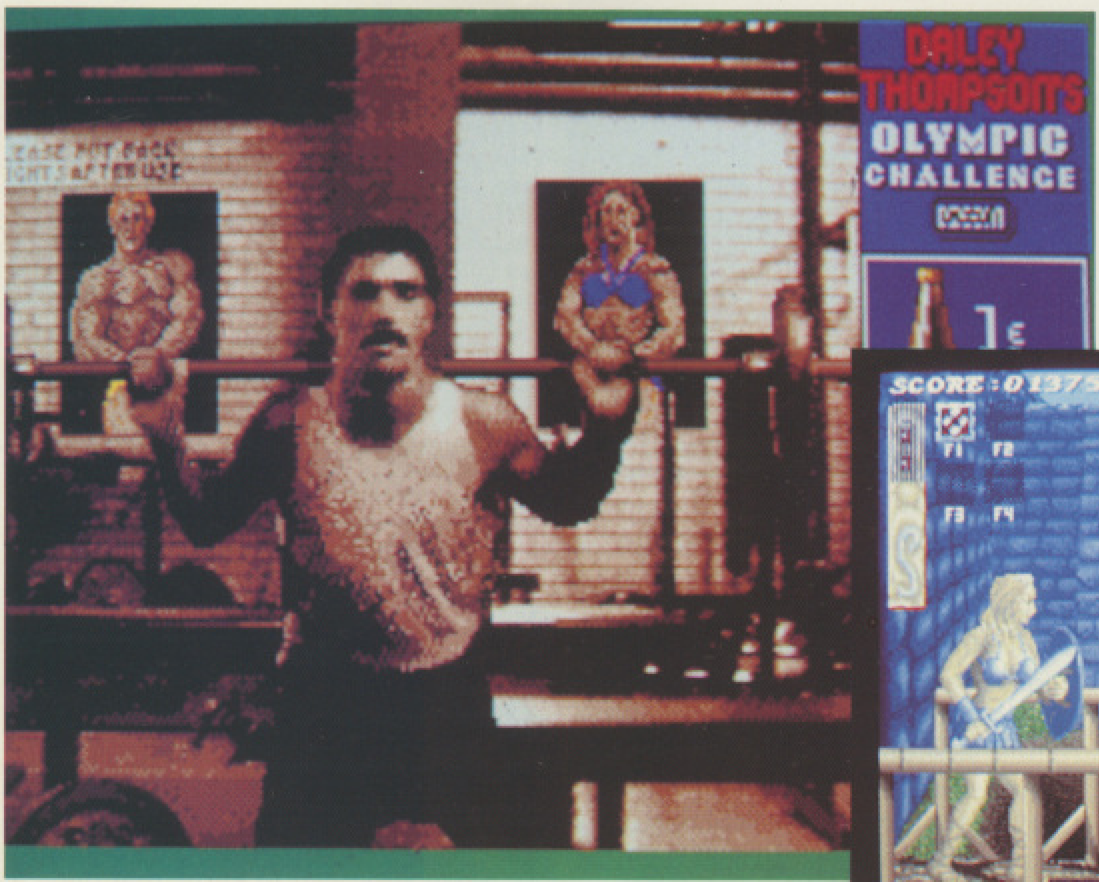
To get loads of points in the 100m run as fast as you can until you are just about to cross the finishing line and then wait three or four minutes before you cross.

And so on to a letter from Angus Northcott from Midlothian. Not the Angus who thought that the Dinner Party was something you voted for in Hungary but the chap who knows what's what in Sword of Sodan.

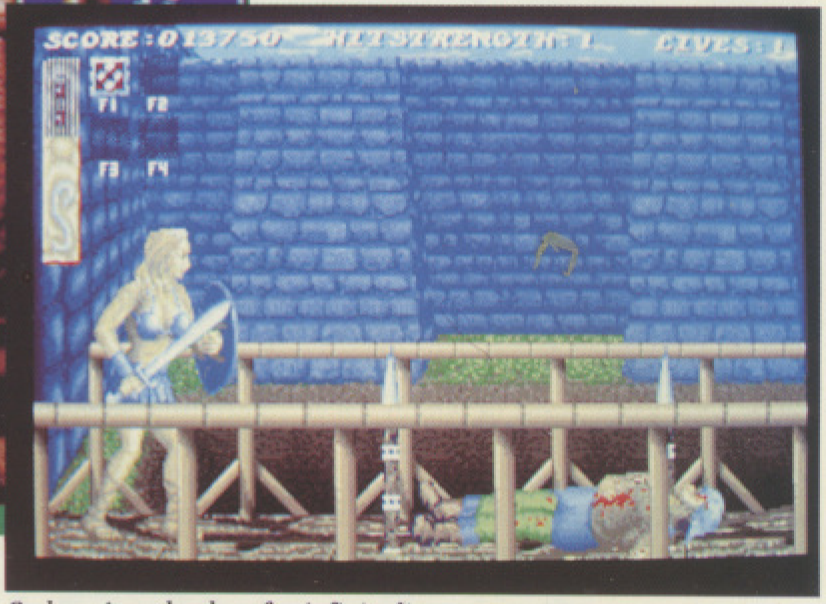
"Play the game he says", good tip – I always find that works well, "When you've lost all your lives wait until the replay option appears and press R. When the replay starts, exit and start a new game, complete with infinite lives".

Thanks, by the way (BTW to all those comms fans), have you noticed the number of icons there are in real life. There is the athlete Icon Billy, the '60s singing duo Icon Tina Turner and the Who song Icon C for Miles.

▶



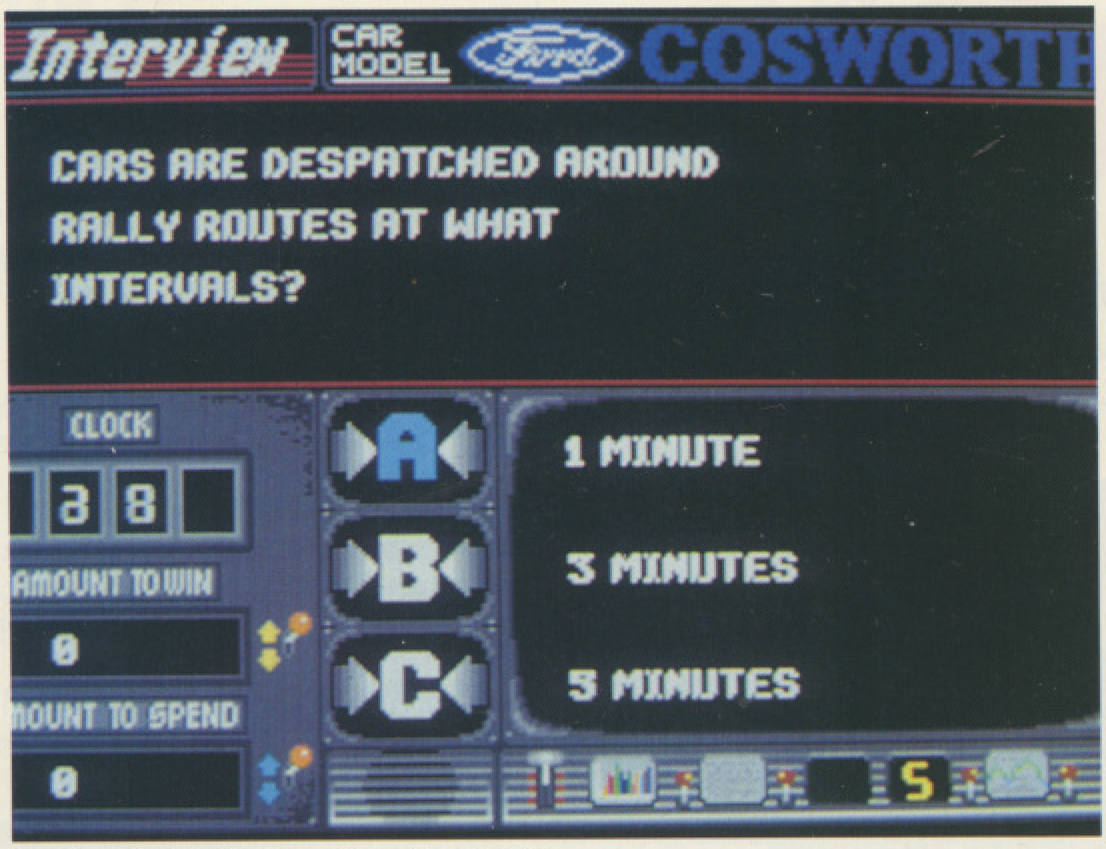
Daley Thompson: Putting his best foot forward



Sodan: A replay bug for infinite lives



Chubby Gristle has his bugs fixed



Lombard RAC Rally: What do points make?

◄

Obviously a good song for a compilation. I'll award a suitable prize for the best list to the usual address. But beware, anything you can do Icon do better.

Chop, chop, a whole load of hints from Sena Kove, most of which we've had before. But the hint for Carrier Command – pause with the mouse and type GROW OLD ALONG WITH ME is one we've not printed, but the one I like is for Chubby Gristle, type BUUURRP. Justin Gavinovic doesn't live far from Senna (up the Ruislip Road, turn left at the White Hart and turn right at the top). So perhaps there is something funny about people who live in Middlesex that makes them like Chubby Gristle.

Justin and his friend Andrew Hine have some pokes for the game. This routine *will* produce a disc error. As usual ignore it. Sorry about the funny format of the data lines, its because of a bug in AmigaBasic, honest.

As a matter of interest this routine also has to fix a bug within the game. The bug doesn't show up normally, through luck mainly, but the poke routine finds it. This is why the routine is so large – it has to rewrite part of the game initialise code.

```
REM INFINITE LIVES FOR
REM 'CHUBBY GRISTLE'
REM COPYRIGHT 1989. BY JUSTIN G.
REM FOR AMIGA COMPUTING.

tot=0
FOR n=458752& TO 458994& STEP 2
READ a$
a=VAL("&h"+a$)
tot=tot+a
POKEW n,a:POKEW (n+244),0
NEXT n
IF tot=1053010& THEN GOTO section2
PRINT "There is an error in the data"
END
section2:
cheat=458752&
CALL cheat

DATA 6100,00AA,337C,0002,001C,42A9
DATA 002C,237C,0000,0400,0024,237C
DATA 0006,0000,0028,4EAE,FE38,33FC
DATA 7FFF,00DF,F09C,45F9,0000,0400
DATA 41FA,002A,23CA,0006,00F2,6100
DATA 0016,45F9,0000,0500,41FA,0038
DATA 6100,0008,4EF9,0006,000C,7028
DATA 24D8,51C8
DATA FFFC,4E75,41F8,4E78,30BC,4EF9
DATA 217C,0000,0500,0002,7060,1140
DATA 3D98,1140,04DC,4DF9,0000,4C00
DATA 4ED6,41F8,0064,20BC,0000,9E02
DATA 217C,0000,9D22,0004,217C,0000
DATA BB6A,000C,41F9,00DF,F09A,30BC
DATA C009,30BC,3FF6,4EF9,0000,4EA2
DATA 2C79,0000,0004,93C9,4EAE,FEDA
DATA 45FA,009C,2480,43FA,0086,4EAE
DATA FE9E,43FA,002E,4280,4281,41FA
DATA 0014,4EAE,FE44,43FA,001E,45FA
DATA 006A,234A,000E,4E75,7472,6163
DATA 6B64,6973,6B2E,6465,7669,6365
```

Who says games aren't educational? Lombard RAC Rally from Mandarin tests your general knowledge on all things that go brooom in the forest.

Graham Hay has contributed his answers for the television interview: The Russian Rally team is called The State Rally team; a Sierra is 4.46m long; the winner of the 17th New Zealand Rally was Franz Whittman and the Ypres Rally in Belgium is held over 24 hours.

You also need to know that the RAC British motorsports yearbook is ►

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DIGICALC

Reviewed in the December issue of Amiga Computing

At last, an inexpensive and very easy-to-use spreadsheet that's simple enough for beginners, yet sophisticated enough for professionals.

Digicalc is both menu and command driven. It is fast, with all calculations being performed instantly, and the spreadsheet is constantly updated.

The manual has been carefully designed to cater for all types of user, from the novice to the expert. It includes a tutorial with step-by-step instructions, a glossary of computer terms, a quick reference card, a full reference section and a comprehensive index.

"I really liked the package to begin with, and first impressions are important... Digita deserves full marks for the way in which the menus and command driven operations have been implemented... It's a no nonsense spreadsheet... I'd certainly recommend it for general purpose spreadsheet work". – **Rex Last, *Amiga Computing,* December 1988.**

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◄

known as the Blue Book, while the FLA yearbook is the Yellow Book. The rally with more than one starting point is the Monte Carlo rally; Michael Salem is the national champion of Lebanon, and the BMW, which is holomagated for group A and available in kit form, is the M3. Good luck and happy motoring.

Another poke from Justin. This time it is for Pacmania, a truly brill Amiga game. Extra half-bright, overscan, hardware scroll but only a few lives. So it is JG to the rescue with infinite lives. The Amiga will produce an error when the Pacmania disc is inserted into the drive. As usual this should be ignored.

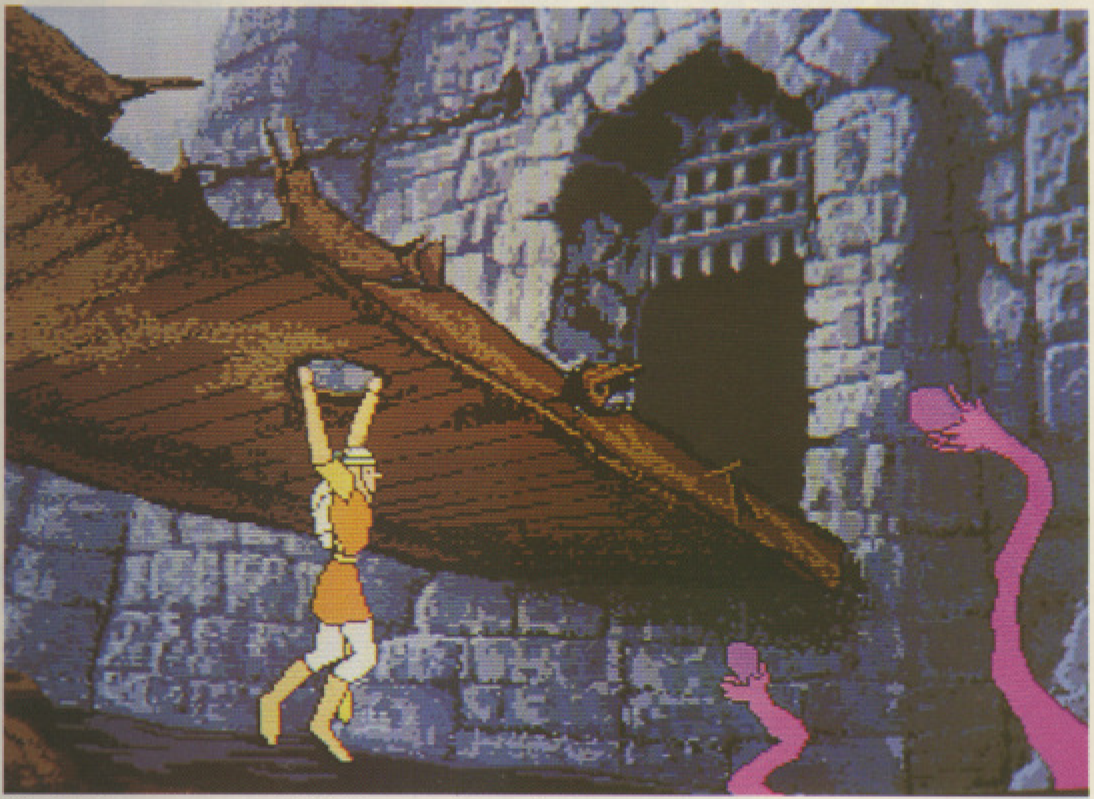
```
REM INFINITE LIVES FOR
REM 'PACMANIA'
REM COPYRIGHT 1989. BY JUSTIN G.
REM FOR AMIGA COMPUTING.

tot=0
FOR n=458752& TO 458906& STEP 2
READ a$
a=VAL("&h"+a$)
tot=tot+a
POKEW n,a:POKEW (n+156),0
NEXT n
IF tot=747760& THEN GOTO section2
PRINT "THERE IS AN ERROR IN THE DATA."
END
section2:
cheat=458752&
CALL cheat

DATA 6152,337C,0002,001C,42A9,002C
DATA 237C,0000,0400,0024,237C,0006
DATA 0000,0028,4EAE,FE38,33FC,7FFF
DATA 00DF,F09C,45F9,0005,0000,23CA
DATA 0006,015A,4CFA,000F,000C,48D2
DATA 000F,4EF9,0006,000C,33FC,6018
DATA 0000,D34E,4DF9,0000,4C00,4ED6
DATA 2C79,0000,0004,93C9,4EAE,FEDA
DATA 45FA,009C,2480,43FA,0086,4EAE
DATA FE9E,43FA,002E,4280,4281,41FA
DATA 0014,4EAE,FE44,43FA,001E,45FA
DATA 006A,234A,000E,4E75,7472,6163
DATA 6B64,6973,6B2E,6465,7669,6365
```

ROSS	LEAD	OPAL
RATT	WEED	SONG
LISA	RING	FIRE
DAVE	GIRL	LAMP
IRON	GOLD	TREE

Mrs Tungate's codes for Bombuzal



The bridge . . . you won't kill the moat monster

DRAGON'S LAIR has posed a problem for a number of readers. Learn the knack of using the joystick to issue commands instead of trying to control Dirk the Dopey. Don't try to avoid the hole on the bridge – fall through, press fire to swipe at the sea monsters and then push forward to climb out of the hole.

In the first room don't drink the potion. Move right to kick the door. On the stairs push the joystick away from the curve of the steps when they start to flash.

When you walk into the room with the green gunge monster press fire. When the sword comes out push forward – this will make you jump over the bench. Then hop towards the exit door. Jump back and start up the stairs, then back on to the bench and finally out of the door.

After that the water whirlpools are easy – just move the opposite way to the vortex.

That is as far as I've got, hope it helps, good luck. Now I've got to sort out a hardware problem. It involves my vertical sync. The water keeps falling out.



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Puppet on a string

Basic is just like a merry-go-round – all the fun of the fair. Jeff Walker puts the INSTR command in the spotlight's glare

INSTR is a useful keyword that gets very little publicity. Some books, the AmigaBasic manual for example, describe its use and give a small example, but most books for beginners to Basic tend to concentrate on the more well known string functions like LEFT$, MID$ and RIGHT$.

This has led to the misconception that INSTR is another of those specialised keywords that only experts or specialists would use. Not so.

For a start, INSTR is extremely useful for validating user input. Take a look at Listing I. The subroutine of greatest interest is *Get.keypress*. Once entered it cannot be returned from until the user has pressed one of the keys the program wants pressed. The valid keys – known in the programming game as hot keys – are held in the variable *valid$*.

At the start of *Get.keypress*, the variable *keypressed* is initialised to zero, and it will remain that way until the line:

```
keypressed=INSTR(valid$,in$)
```

sets it otherwise. This line tries to match the string *in$* – the key you pressed – with the string *valid$*. If it finds that *in$* is part of *valid$* it assigns the value equal to the position of the first occurrence of *in$* to the variable *keypressed*.

In terms of Listing I, this means that if, for example, *valid$* holds the string YN, then if Y is pressed *keypressed* will be set to the value 1 and if N is pressed it will be set to 2. If any other key is pressed *keypressed* will remain as zero. If this confuses, Figure I should put you right.

Back in the calling subroutine, *Ask.nosey.questions*, the value of the variable *keypressed* is stored away in another variable for future use – *male* or *married*, for example.

In the *Initialise.variables* subroutine two variables have been set up, *yes* and no, to hold the values 1 and 2. These are used instead of numbers in

```
in$="E": valid$="ABCDEFG"
keypressed=5 ————————↑

in$="B": valid$="ABCDEFG"
keypressed=2 ————↑

in$="Z": valid$="ABCDEFG"
keypressed=0
```

Figure I: How INSTR works

```
Single keypress validation

Mainloop:
  GOSUB Initialise.variables
  GOSUB Ask.nosey.questions
  GOSUB Print.results
  PRINT:END

Ask.nosey.questions:
  PRINT "Are you male or female? (M/F) ";
  valid$="MF":GOSUB Get.keypress:male=keypressed
  PRINT "Are you married or not married? (M/N) ";
  valid$="MN":GOSUB Get.keypress:married=keypressed
  PRINT "Are you bald or hairy? (B/H) ";
  valid$="BH":GOSUB Get.keypress:bald=keypressed
  PRINT "Are you clever or thick? (C/T) ";
  valid$="CT":GOSUB Get.keypress:clever=keypressed
  RETURN

Print.results:
  PRINT:PRINT "Ok, you are a ";
  IF married=no THEN PRINT backspace$;"n un";
  PRINT "married, ";
  IF bald=yes THEN PRINT "bald and "; ELSE PRINT "hairy, ";
  IF clever=yes THEN PRINT "clever "; ELSE PRINT "thick ";
  IF male=yes THEN PRINT "man." ELSE PRINT "woman."
  RETURN

Get.keypress:
  keypressed=0
  WHILE keypressed=0
    Loop: in$=UCASE$(INKEY$):if in$="" THEN Loop
    keypressed=INSTR(valid$,in$)
  WEND
  PRINT in$
  RETURN

Initialise.variables:
  yes=1:no=2
  backspace$=CHR$(8)
  RETURN
```

Listing I

the *Print.results* subroutine. They make the program more readable – it is obvious at a glance what is going on in a line like *IF male=yes THEN...* whereas *IF male=1 THEN...* is totally confusing to anyone except the original programmer.

The *Get.keypress* subroutine can be used to test for as many hot keys as can be held in the string *valid$* – even numbers, which when all is said and done are just more Ascii characters. So,

```
valid$="123456789":GOSUB Get.keypress
```

would return with *keypressed* holding the exact number the user has chosen and could therefore be used directly in an ON..GOSUB statement:

```
ON keypressed GOSUB Sub1,Sub2 ...
```

NOW we are going to see how INSTR can be used to split up a sentence into its separate words, and do a rudimentary parse. To isolate a word we need to know its boundaries, or to use the correct jargon, its *delimiters*.

Words in English can be delimited by quite a few punctuation marks, but at the end of the day each word in a sentence, except maybe the first, will be preceded by a space. This is the character – CHR$(32) – we will look for to show us where a new word starts.

Listing II shows the technique. Enter *Split.sentence* with the sentence to be split held in the string *in$* and the subroutine will exit with the separate words of the sentence held in the *word$()* array.

Note that you should dimension this array to the greatest number of words you would expect the user to type. In the initialisation subroutine I've dimensioned it to 10, but 30 or 40 would probably be safer figures.

In the splitting subroutine the sentence is first assigned to a temporary variable, *temp$*, then we look for a space character and set up a counter for use in the WHILE ... WEND loop.

The first line in that loop assigns all the characters up to but not including the first space – if one is found – to *word$(count)*, then the next line knocks this word, and the space, off the sentence before the loop increments the counter, checks for another space and goes round again.

After the loop has executed – or not if *in$* was a single word and contained no spaces – one word is still not assigned to the *word$()* array. This is either the first and only word of the sentence, or the very last – the line before RETURN takes care of this job.

The routine is still just a shell. Routines to check for empty strings and punctuation marks need to be added – but now you have the basics I'm sure you can do the rest.

APART from detecting single characters, INSTR can also be used to spot the presence or not of a shorter string within a longer one. Again, the value returned will be the position where the shorter target

▶

```
Splitting a sentence

Mainloop:
  GOSUB Initialise.variables
  GOSUB Split.sentence
  GOSUB Print.results
  END

Initialise.variables:
  DIM word$(10)
  in$="Get the hat and wear it"
  RETURN

Split.sentence:
  temp$=in$
  space.position=INSTR(temp$,CHR$(32))
  count=1
  WHILE space.position>0
    word$(count)=LEFT$(temp$,space.position-1)
    temp$=RIGHT$(temp$,LEN(temp$)-space.position)
    count=count+1
    space.position=INSTR(temp$,CHR$(32))
  WEND
  word$(count)=temp$
  RETURN

Print.results:
  PRINT:PRINT in$:PRINT
  FOR loop=1 TO count:PRINT loop;word$(loop):NEXT
  PRINT:RETURN
```

Listing II

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```
'
' Rudimentary parsing
'
Mainloop:
  WHILE NOT bored
    GOSUB Initialise.variables
    GOSUB Get.word
    word$(1)=in$
    GOSUB Parse.word
  WEND:END

Initialise.Variables:
  know$="TAKE#DROP#CLIMBSPEAKBASTABYE##":RETURN

Get.word:
  INPUT "Enter a word ";in$:in$=UCASE$(in$):RETURN

Parse.word:
  temp$=word$(1):sp=INSTR(temp$,CHR$(32))
  IF sp>0 THEN temp$=LEFT$(temp$,sp-1)
  Loop: IF LEN(temp$)<5 THEN temp$=temp$+"#":GOTO Loop
    what$=LEFT$(temp$,5):where=INSTR(know$,what$)
    IF where=0 THEN Exit ELSE branch=INT(where/5)+1
    ON branch GOSUB Take,Drop,Climb,Speak,Naughty,Bye
    Exit: RETURN

Take:
  PRINT "You take it.":RETURN

Drop:
  PRINT "Ok. Dropped.":RETURN

Climb:
  PRINT "Wot? Up there?":RETURN

Speak:
  PRINT "Speak to who?":RETURN

Naughty:
  PRINT "So are you!":RETURN

Bye:
  PRINT "Toodlepip.":bored=(1=1):RETURN
```

Listing III

◄

string starts within the longer searched string, or zero if it is not found. This is where INSTR can help us do a bit of parsing.

Before we move on to Listing III though, let me introduce you to the extra parameter in INSTR, the "start position". Take a look at Figure II. Notice that because we've designated the search to start from the ninth character in the string, when searching for THE it finds the second occurrence, not the first.

Had we designated 1 as the start position for the search, the first THE would have been found instead. Notice also that a target string of CAT returns the value of zero, meaning the search failed. If you don't understand why, go back to the beginning of this article and start again. And this time, take it slowly.

Right, back to our programming. Keeping our adventure scenario going, we now know how to split the sentence up we can make some assumptions, the main one being that the first word, *word$(1)*, will be a verb – take, drop, climb and so on.

If we pack all the words we want our program to understand – or, at least, the first five letters of each word – together into one long string, we can use INSTR firstly to tell us whether the word is understood or not, and then to branch the program to a subroutine which deals with that particular word.

The program's vocabulary – the first five letters of each word – would be held in the variable *know$*. If a word is less than five letters, fill it out with a dummy character. I've used hashes. (Good morning, judge.)

The line labelled *Loop:* in the *Parse.word* subroutine does the same thing to the temporary variable *temp$* so that the program doesn't crash when the next line lops off the first five characters of the word in order to process them. If the word we typed in was only three letters long, and if we hadn't filled out the word, this line would crash because it would be looking for five letters in a three-letter word.

The instruction *where=INSTR (know$,what$)* is the one that checks to see if the word you typed is in the program's vocabulary. If it isn't, the variable *where* exits from the INSTR function with a value of zero, which is the signal that Listing III doesn't speak your language.

In my program I've only instructed control to jump to the RETURN statement, in practice you would deal with this by branching to a "je ne comprends pas" subroutine.

The *branch=INT(where/5)+1* calculation before the ON..GOSUB line is there because the variable *where* can't be used in its present form. In the example program *where* will return from INSTR holding the value 1, 6, 11, 16, 21 or 26. We need to convert this sequence to 1, 2, 3, 4, 5, 6 for ON..GOSUB, and this is done by integer-dividing *where* by five and adding one.

If your program's vocabulary consisted of the first four letters of each word, then the division would be by four; if it was the first six letters, the division would be by six. Whatever you divide by though, you will have to add one to the result.

The variable *branch* holds the new value that sends control of the program to the subroutine which most closely understands the word in question.

So far we've only parsed the first word of the sentence, and these special subroutines are where you would begin to investigate the rest of it – the words held in the *word$()* array.

If the verb, for instance, is "take", then you know there is going to be a noun somewhere in the sentence, so a second parsing subroutine to deal with these objects needs to be executed – presuming, of course, that there is more than one object lying around.

The technique is almost identical to that which we have just been through. Away you go.

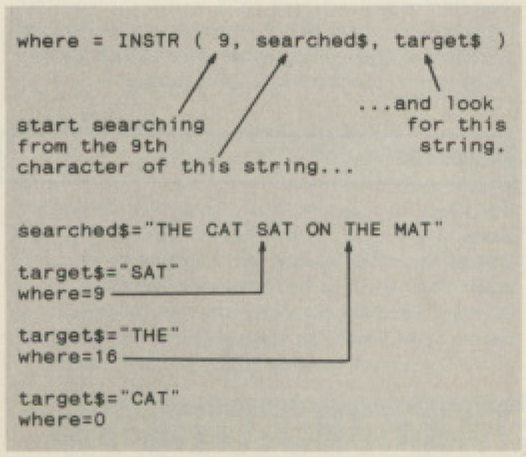


Figure II: Using INSTR's extra parameter

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TO ORDER PLEASE USE THE FORM ON PAGE 97

AMIGA Letters

If you don't ask, you won't learn

THERE is an ASK command on my Workbench, which is version 1.2. Please could you tell me what it is for and how to use it?

Ian Heywood,
North Wales.

The ASK command is used to prompt for a yes or no answer within a batch file, such as your Startup-Sequence contained in the S directory. While it is supplied on 1.2 discs, it is really a 1.3 command, documented in the 1.3 expander manual. The following lines demonstrate its use:

```
Failat 5
Ask "Should I stop? (y/n)"
Echo "Good, then I'll go further"
```

The computer waits for you to type either yes or no (Y or N) followed by Return. If something else is entered ASK waits until a correct answer is given.

If you press N an error code of zero is returned. Press Y and the error is set to 5. Because you have a Failat 5 in the first line, getting an error 5 will stop the command file and go back to CLI.

Plug-in power

I NOTICED an advert on page 74 of your fifth issue for a 68010 plug-in replacement CPU for the A500 costing £21. It states that the replacement CPU can be easily fitted and can increase the speed of some programs by up to 22 per cent. Please could you tell me whether it would be a worthwhile investment or not?

Stuart Paterson,
Scotland.

Fitting an MC68010 processor into your Amiga can increase performance. It will run standard programs between 8 per cent and 50 per cent faster. You may see a significant improvement in programs' running if they use lots of multiply, divide and looping operations – it will really depend on the software.

Modification of your machine is very simple – you only have to replace the main processor – but you should know what you are doing to carry this out as the operation will invalidate your warranty.

Some badly written programs will not work with the new chip. Some friends who have upgraded their machines to work with a 68010 say it is not worth the hassle. Some have even gone back to using the old 68000. In short, if you need to ask, the upgrade is not for you.

Less is more

I RECENTLY bought an A501 ram expansion and am very disappointed that I can no longer run several programs – Textcraft, Leaderboard, Winter Games, Ports of Call and Hardball. I have tried loading Workbench and running the NoFastMem routine, but to no avail.

Is there any solution to this problem, which in addition to being an expensive waste of software is also causing great inconvenience because I have lots of important data stored in Textcraft?

Ray Harris,
Defence Audit Centre,
BFPO.

Some of the programs you have mentioned will have trouble running with Workbench and NoFastMem. Textcraft happens to be one of them. You can try two things. First copy NoFastMem on to your program disc and run it from the Startup-Sequence. This will remove your expansion memory and not leave Workbench in the way to interfere.

The second method to try – it works particularly well with Textcraft – is to use a utility program on Fish Disc 36 called Fixhunk. This can be used on programs that play up when additional memory is attached. It will read through Textcraft and change it to allow it to run with your expansion.

Fish Disc 36 is available free if you join ICPUG (01-346 0050) or you can buy it from Cavendish Commodore Centre (0533 550993).

You will have to remove the A501 to run your games.

Write to: The Editor, Amiga Computing, 78-84 Ongar Road, Brentwood, Essex, CM15 9BG. We'll send the writer of the best letter each month a program from our goodie drawer.

Old printer, new Workbench

I WONDER if you could help me, a newcomer to the Amiga scene, get my four-year-old printer to work with my Amiga 500. I have Kickstart 1.3 resident and my printer is a Star Gemini 10X, fully functional with my old computer. Unfortunately, none of the resident printer drivers seem to work.

Choosing the Custom option from Preferences and using the escape codes from the printer manual has no effect at all. Although selecting the Epson option results in the printer working, all I get is a series of character deep, fully shaded horizontal lines.

The only other part of my equipment which is non standard is the parallel printer cable from an Amstrad PC1512. My dealer assures me that this lead is identical to the Amiga one.

R. Cranna,
Lancashire.

Now that Workbench 1.3 is officially available, pop down to your local dealer and get one. In the printer drivers on the Extras disc you will

▶

find a driver called EpsonXOld. This supports the Epson X series and the Star Micronics Gemini 10-X.

We use an Amstrad printer cable and have had no problems with 9 pin, 24 pin, daisywheel and laser printers. We offer the same advice to Mr Durrans, who has a similar problem with his MPS1250.

Over protective

I AM in the fourth year studying for my GCSEs. I hope to go on to do A level computer science. At the moment the school has a number of BBC Micros and a couple of Amstrad PCs. They are looking at upgrading, so I took in my A500 and the BBC emulator disc. I'm using it to write my GCSE project and have found it very useful, but the school wants to buy some Archimedes 440s.

The main reason for this is that the Amstrad PC we've got has a hard disc, and the school wants to put a hard disc on all the new machines. They would probably buy A2000s,

AMIGA Letters

but you can't put the emulator on to a hard disc. I think this is pretty short-sighted. I know it is to prevent piracy, but this stops legit users from getting the most from a great program.

Keith Stark,
Bury St. Edmunds.

We couldn't agree more. In some ways we blame schools which are notorious for pirating software. Perhaps they have got what they deserve. Protecting the disc is plain daft. We thought one of the aims of the Beebulator was to promote the Amiga in schools, so this move can only reduce its effectiveness.

Name that tune

HAVING bought an Amiga as part of my music studio, are there any programs you could recommend for recording sequences and samples at a reasonable cost?

Paul Sampson,
Berkshire.

We suggest you check out these current packages: Studio Magic, £65 from Amiga Centre Scotland (031-557 4242), Pro Midi Plus £34.95 from Power Computing, (0234 273000), and Midi Magic, £79.95 from Brown Wagh Direct (01-602 2502).

Disc disposal

CAN you tell me if it possible to connect a Cumana CS400 disc drive (double sided, 80 track, 400k, ex-BBC B) to the Amiga?

F. P. Wilson,
Lancashire.

No, there is no way you can connect this drive to an Amiga. We have spoken to Cumana, who tell us that not even a modification is feasible. Your best option is to sell the drive and buy a new one dedicated to the Amiga.

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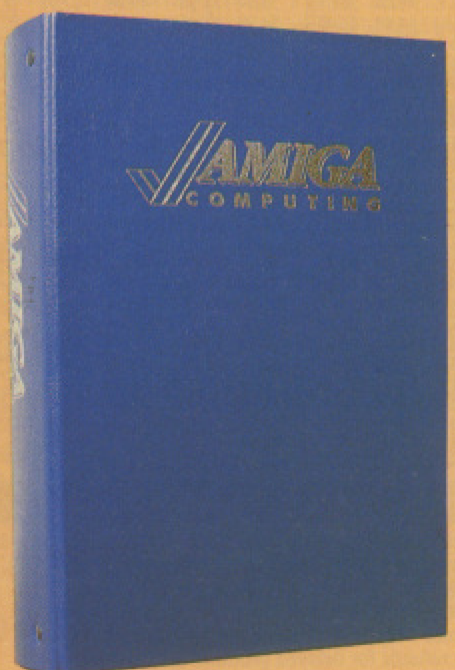


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